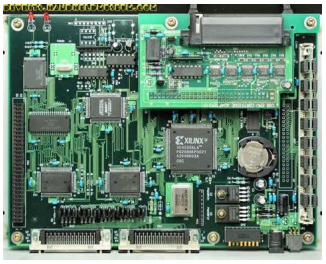
TVS 选 型 指 南

SMF 200W	SMA 400W	SMB 600W	SMC 1500W
			
SMD 3000W/5000W	PEKE 600W/SA 500W	1.5KE 1500W	3KP 3000W /5KP 5000W
			
HE /SE 高能量			
			

这本手册旨在介绍本公司的 TVS 产品和技术数据及应用，帮助使用者正确使用 TVS 保护器件，当然，用户应当独立地评估型号器件是否适合他们的需要 ，并且独立地进行测试 。 音特公司不对信息准确性和完整性作出担保 ，并拒绝承担任何有关其用途的责任 。音特公司只承担在音特标准条款和销售条件中所承诺的义务 ，在任何情况下 ，对于他出售的产品 ，因转认，使用或误用其产品所造成的任何偶发的 、间接的、非直接的损坏，音特公司概不负责 ，

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TVS 产品系列	Pppm (w)	Device	Package	
			Family	Type
	200	SMFJ Series	Surface Mount	SOD-123 (SMF)
	400	SMAJ Series	Surface Mount	DO-214AC (SMA)
	500	SA Series	Plastic axial	DO-15
	600	SMBJ Series	Surface Mount	DO-214AA (SMB)
		P6SMBJ Series	Surface Mount	DO-214AA (SMB)
		P6KE Series	Plastic axial	DO-15
	1500	SMCJ Series	Surface Mount	DO-214AB (SMC)
		1.5KE Series	Plastic axial	DO-201
	3000	SMDJ Series	Surface Mount	DO-214AB (SMC)
		3KP Series	Plastic axial	P600
	5000	5.0SMDJ Series	Surface Mount	DO-214AB (SMC)
		5KP Series	Plastic axial	P600
	15000	15KP Series	Plastic axial	P600
	高能量	HE Series	Plastic axial	非常规
		SE Series	Plastic axial	非常规

产品特点 ：

- 硅雪崩瞬态抑制二极管
- 汽车级瞬态抑制二极管
- 特殊功能瞬态抑制二极管

使用场合：

- 家电
- 通信
- 工业
- 移动设备
- 汽车
- 家庭娱乐
- 照明
- 个人电脑

Transient Voltage Suppressors （TVS） 常常用于保护易受干扰的电路免遭电气过应用力如静电放电、电感负载开关、感应雷等 ， 使用 TVS ， 通过一个坚固的硅制 PN 结的雪崩运动，将电压尖峰箝位在一个非破坏性的水平上

TVS 的主要参数：

- VRWM： 工作电压
- VBR ： 关断电压
- VC ： 箝位电压
- IPP ：最大脉冲电流
- IR ： 反向漏流
- P_{PPM} ： 峰值脉冲功率
- C ： 电容

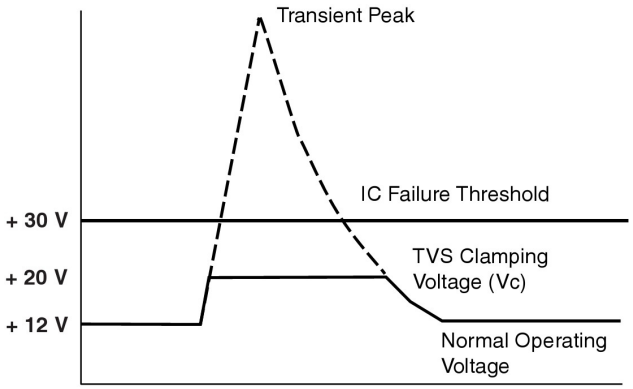


Figure 1. Figure 1. Transients of Several Thousand Volts can be “clamped” to a Safe Level by the TVS

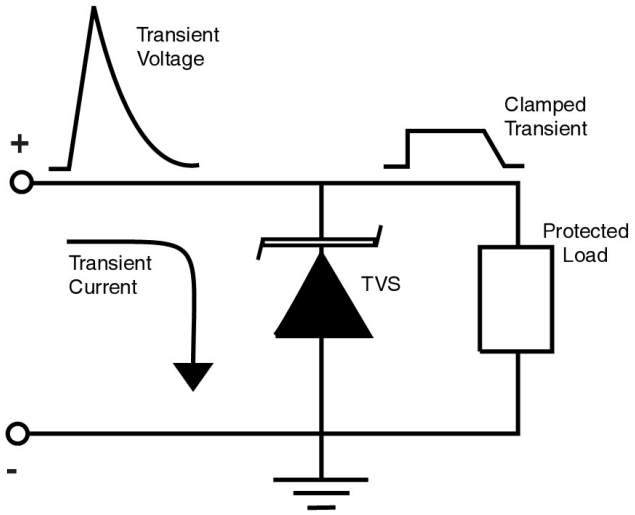


Figure 2. Transient Current is Diverted to Ground Through TVS

在一个电路中 ，TVS 往往是“隐藏”的，直到一个瞬态事件出现，其电气参数如：关断电压（VBR），漏流（IR）和电容 C 应不影响电路的正常工作 。TVS 的关断电压（VBR）往往高于反向电压（VRWM）值的10%

TVS 的浪涌功率和浪涌能力与他的结面积成正比

硅制 TVS 浪涌级别是在一个给定的波形下如8/20uS，由峰值脉冲功率 P_{PPM} 来表示

在所有的 TVS Data Sheets 中，VC 值都有一个对应的 IPP 值 ，当电路中的瞬态 IP 值不同于额定的最大值 ， 那么我们怎样来计算此时的 VC 值 呢 ？

VC=(IP/IPP)(VCmax - VBRmax) + VBRmax

Note :Ip = test pulse current
Ipp = max rated pulse current
VCmax=maximum specified clamping voltage
VBRmax=upper limit of breakdown voltage

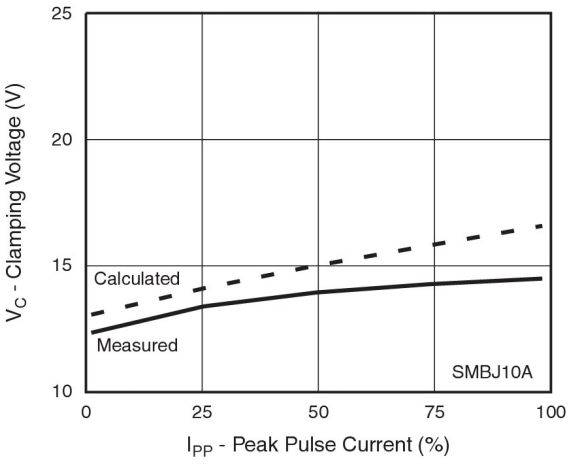


Figure 3. VC vs IPP for SMBJ10A Calculated and Measured

现在一些电气系统如传感器 ， 微控制器等常常放置在一些恶劣的环境，如在暴露在闪电、过载开关或其他破坏性瞬态电压 ， 为了保护这些脆弱的电路元件免遭电力过应力损坏 ，一些大功率硅制 TVS 常常作为我们的第一选择，如图四所示

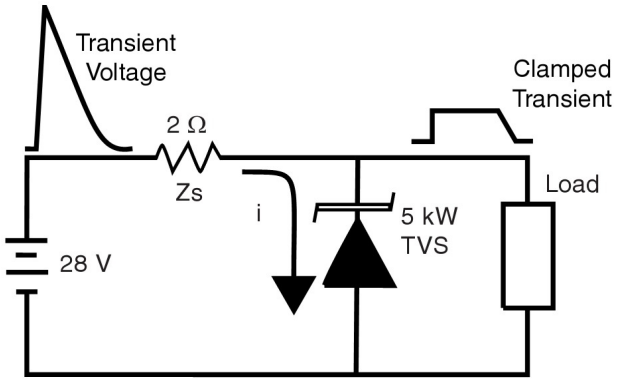


Figure 4. 5 kW TVS

例如：一个28V 压力传感放置在一个可能有140V 的瞬态峰值脉冲，在10/1000 μ s 时会有2 Ω 的源阻抗，这个压力传感器的失效电压是40V ，因此 ，TVS 的箝位电压在40V 甚至更低，可以算出他的 IP 值：

IP =（140V - 40V）/2 Ω = 50 A
选用音特5KP28A ， 可以轻易的满足要求 ，

当然 ，也可以有更经济的方法 ，在电路中加一个串联电阻 ， 如图五所示

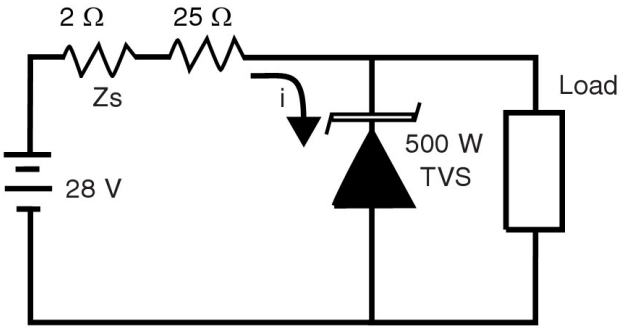


Figure 5. 500 W TVS

传感器的正常工作电流很小（典型值小于20mA ），减少线路中的工作电流 而不会影响传感器的正常工作 ， 此时 ， 串联一个25 Ω 电阻，可以选用功率更低一点的 TVS

IP = （140V - 40V）/（2 Ω +25 Ω ）=3.7 A
此时 ， 可以选用音特公司500W 的 SA28A ， 它的 IPP=11A 》3.7A

当然 ， 串联电阻会增加功耗 ， 须酌情衡量

当破坏性的干扰不止一次的出现在电路的同一处，如：功率性转换装置，继电器，电机控制，部件受到周期性的短暂瞬态脉冲，Transient Voltage Suppressor (TVS)能够狠好的解决这问题，不过，选用合适的 TVS 是很讲究的，TVS 的 PPPM 是在标准脉冲波形下测试的，对于持续的瞬态脉冲，我们需要计算它的平均稳态功率，

例如：在电机驱动电路中，通过电机绕组的开关电流会持续地产生一个4ms 25A 脉冲，频率120HZ

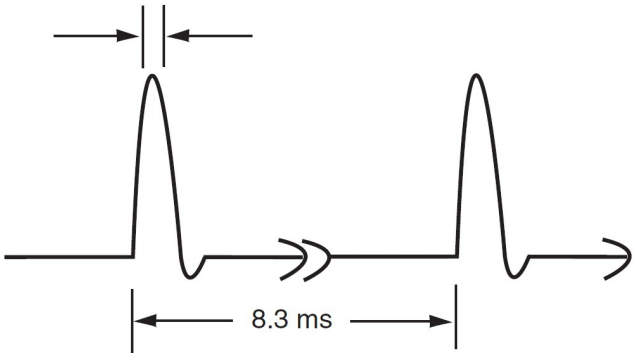


Figure 6. Repetitive Transient Generated by Motor Winding Inductance

我们选用一个 SMBJ6.5A，它的 VC 值为 11.2V，

瞬态功率 P =IP*VC =25A*11.2V=280W

周期 T=1/120HZ = 0.0083S

平均功率 Pavg=280W*(0.000004/0.0083) = 0.134 W

SMBJ6.5A 的平均稳态功率至少要大于1 W．这里选用符合要求！

关于周期性的瞬态脉冲，需要算出平均稳态功率 Pavg，再选出符合要求的 TVS。

Silicon avalanche transient voltage suppressors 在电路保护中提供了一个极大的灵活性，这些器件电压从5V 至440V，功率从200W 至15000W，另外，还将高电压和大功率有效的结合，可以串联和并联。

并联两个及更多的 TVS，需要提供相同的电压响应（反向工作电压和截止电压和箝位电压）作为一个单元，串联 TVS 会提高漏电流 IR，优点是提高通流量和功率

例如：

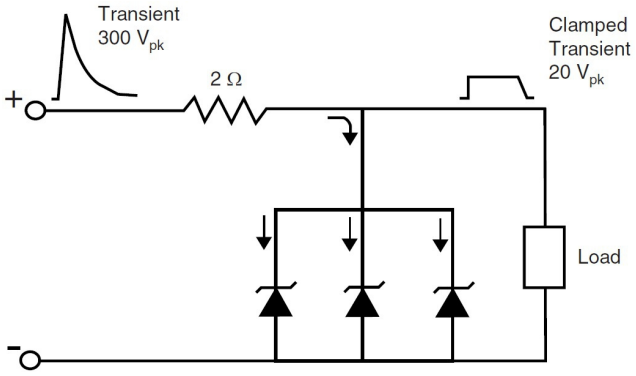


Figure 7

这里有一个150V 瞬态电压和150A 的电流，我们选用三个1.5KE15A，因为150A 的通流量要大于单个TVS 的通流量，并联后，单个TVS 平均分到50A 的电流，而1.5KE15A 的通流量为71A，并联三个后符合要求

当然，由于动态电阻的微小差异，每个 TVS 的参数有点不一样，挑选时，要注意各单元的匹配

电压很大时，可以将 TVS 串联，增大电压，选用时也要注意匹配的问题！

TVS 的一些简单用法

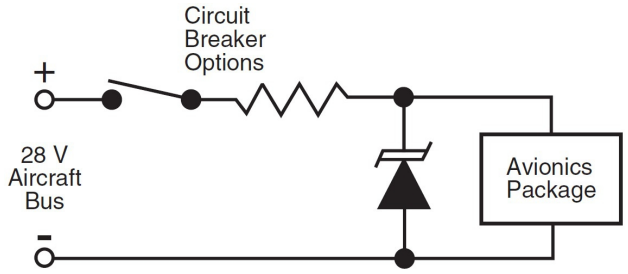


Figure 8. 28 V D.C. Supply Protection

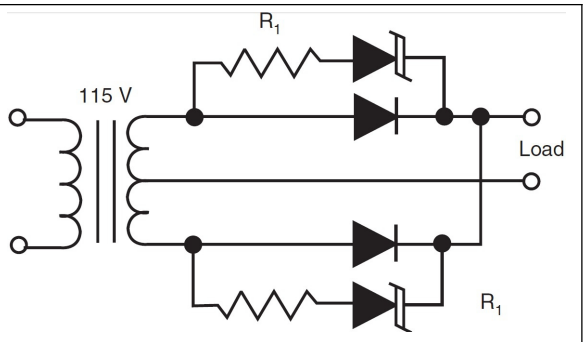


Figure 11. Breakdown Voltage Rectifier Protection

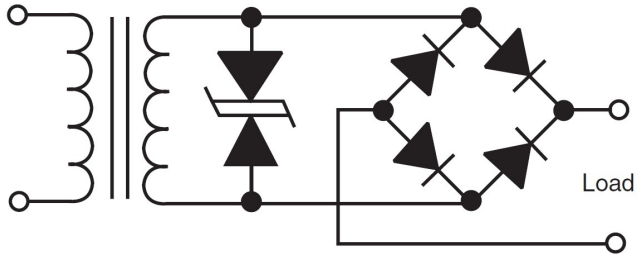


Figure 9. A.C. Supply Protection

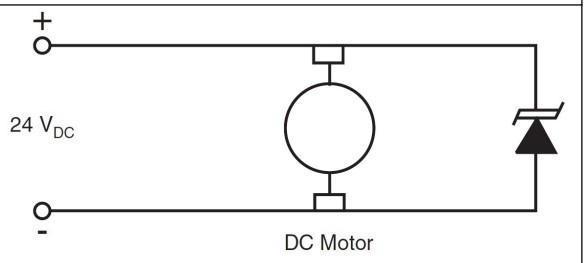


Figure12. EMI limiting

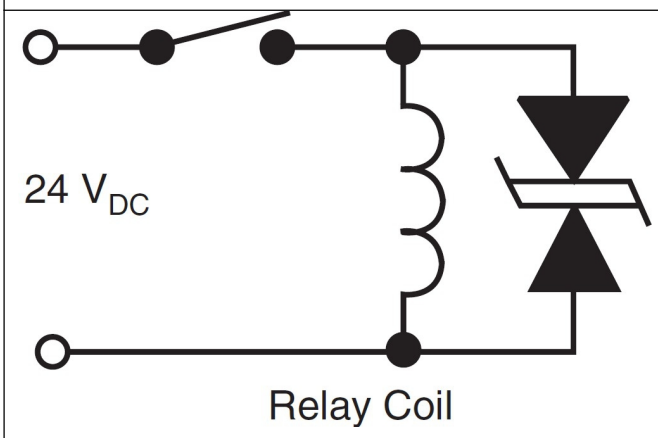


Figure 10. Relay and Contractor Transient Limiting

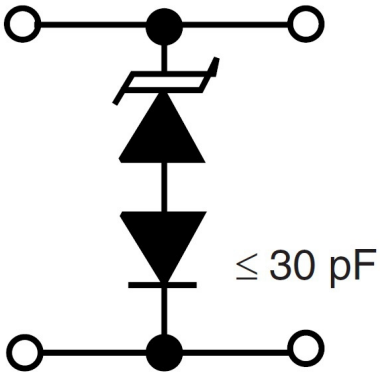
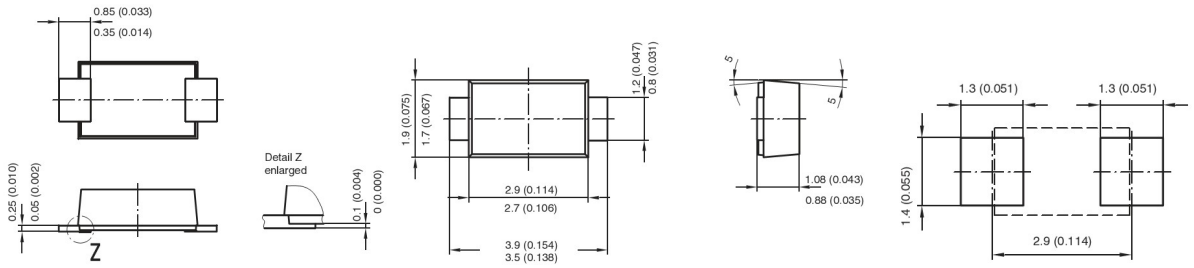
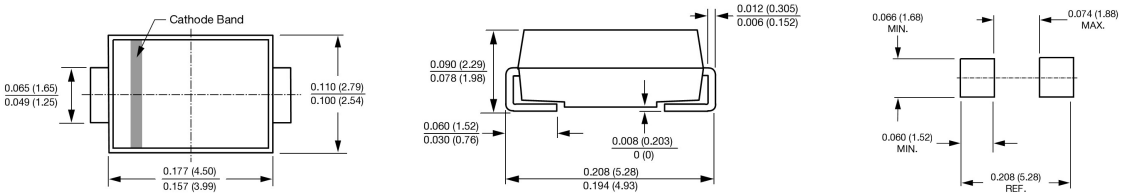
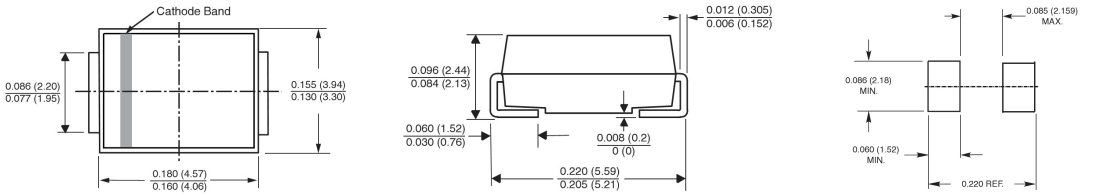
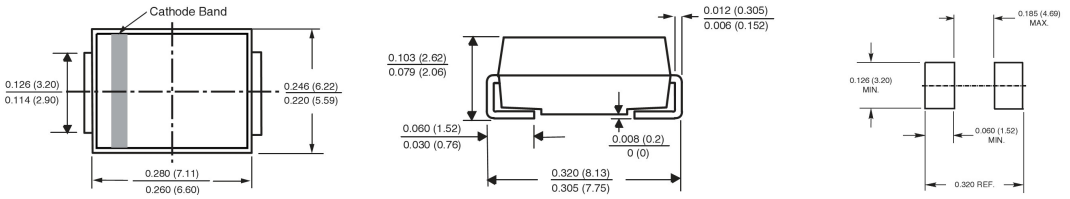
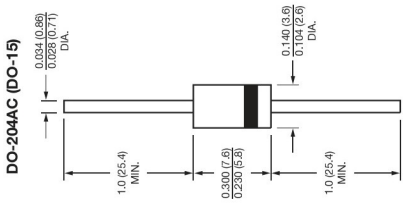
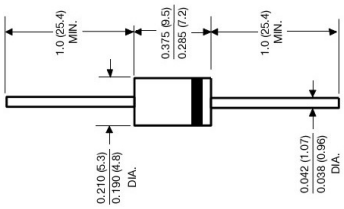
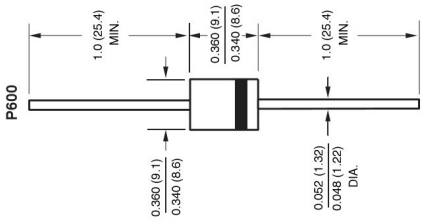


Figure13 To improve Insertion Loss

TVS 尺寸图 ：

SOD-123 (SMF)	
DO-214A C (SMA)	
DO-214A A (SMB)	
DO-214A B(SMC)	
DO-15	
DO-201	

P600	 P600 1.0 (25.4) MIN. 0.360 (9.1) 0.340 (8.6) 1.0 (25.4) MIN. 0.360 (9.1) 0.340 (8.6) 0.052 (1.32) 0.048 (1.22) DIA.

SMFJ Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μA)	Maximum Peak Pulse Current I pp (A)	Maximum Clamping Voltage V_C@ I_{pp}(V)
			Min .V	Max .V				
SMF5.0CA	SMF5.0A	5.0	6.4	7	10	400	21.7	9.2
SMF6.0CA	SMF6.0A	6.0	6.67	7.37	10	400	19.4	10.3
SMF 6.5CA	SMF 6.5A	6.5	7.22	7.98	10	250	17.9	11.2
SMF7.0 CA	SMF7.0 A	7.0	7.78	8.6	10	100	16.7	12
SMF 7.5CA	SMF 7.5A	7.5	8.33	9.21	1.0	50	15.5	12.9
SMF 8.0CA	SMF 8.0A	8.0	8.89	9.83	1.0	25	14.7	13.6
SMF8.5 CA	SMF8.5 A	8.5	9.44	10.4	1.0	10	13.9	14.4
SMF9.0 CA	SMF9.0 A	9	10	11.1	1.0	5	13	15.4
SMF10CA	SMF10A	10	11.1	12.3	1.0	2.5	11.8	17
SMF11CA	SMF11A	11	12.2	13.5	1.0	2.5	11	18.2
SMF12CA	SMF12A	12	13.3	14.7	1.0	2.5	10.1	19.9
SMF13CA	SMF13A	13	14.4	15.9	1.0	1.0	9.3	21.5
SMF14CA	SMF14A	14	15.6	17.2	1.0	1.0	8.6	23.2
SMF15CA	SMF15A	15	16.7	18.5	1.0	1.0	8.2	24.4
SMF16CA	SMF16A	16	17.8	19.7	1.0	1.0	7.7	26
SMF17CA	SMF17A	17	18.9	20.9	1.0	1.0	7.2	27.6
SMF18CA	SMF18A	18	20	22.1	1.0	1.0	6.8	29.2
SMF20CA	SMF20A	20	22.2	24.5	1.0	1.0	6.2	32.4
SMF22CA	SMF22A	22	24.4	26.9	1.0	1.0	5.6	35.5
SMF24CA	SMF24A	24	26.7	29.5	1.0	1.0	5.1	38.9
SMF26CA	SMF26A	26	28.9	31.9	1.0	1.0	4.8	42.1
SMF28CA	SMF28A	28	31.1	34.4	1.0	1.0	4.4	45.4
SMF30CA	SMF30A	30	33.3	36.8	1.0	1.0	4.1	48.4
SMF33CA	SMF33A	33	36.7	40.6	1.0	1.0	3.8	53.3
SMF36CA	SMF36A	36	40	44.2	1.0	1.0	3.4	58.1
SMF40CA	SMF40A	40	44.4	49.1	1.0	1.0	3.1	64.5
SMF43CA	SMF43A	43	47.8	52.8	1.0	1.0	2.9	69.4
SMF45CA	SMF45A	45	50	55.3	1.0	1.0	2.8	72.7
SMF48CA	SMF48A	48	53.3	58.9	1.0	1.0	2.6	77.4
SMF51CA	SMF51A	51	56.7	62.7	1.0	1.0	2.4	82.4
SMF54CA	SMF54A	54	60	66.3	1.0	1.0	2.3	87.1
SMF58CA	SMF58A	58	64.4	71.2	1.0	1.0	2.2	93.6
SMF60CA	SMF60A	60	66.7	73.7	1.0	1.0	2.1	96.8
SMF64CA	SMF64A	64	71.1	78.6	1.0	1.0	2	103
SMF70CA	SMF70A	70	77.8	86	1.0	1.0	1.8	113
SMF75CA	SMF75A	75	83.3	92.1	1.0	1.0	1.7	121
SMF78CA	SMF78A	78	86.7	95.8	1.0	1.0	1.6	126

SMFJ Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μA)	Maximum Peak Pulse Current I pp (A)	Maximum Clamping Voltage V_C@ I_{pp}(V)
			Min .V	Max .V				
SMF85CA	SMF85A	85	94.4	104	1.0	1.0	1.5	137
SMF90CA	SMF90A	90	100	111	1.0	1.0	1.4	146
SMF100CA	SMF100A	100	111	123	1.0	1.0	1.3	162
SMF110CA	SMF110A	110	122	135	1.0	1.0	1.2	177
SMF120CA	SMF120A	120	133	147	1.0	1.0	1	193
SMF130CA	SMF130A	130	144	159	1.0	1.0	1	209
SMF150CA	SMF150A	150	167	185	1.0	1.0	0.8	243
SMF160CA	SMF160A	160	178	197	1.0	1.0	0.8	259
SMF170CA	SMF170A	170	189	209	1.0	1.0	0.7	275

SMAJ Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	MARKING		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μ A)	Maximum Peak Pulse Current I pp (A)	Maximum Clamping Voltage V_C@ I_{pp}(V)
		BI	UNI		Min .V	Max .V				
SMAJ5.0CA	SMAJ5.0A	WE	AE	5.0	6.4	7.25	10	800	43.5	9.2
SMAJ6.0CA	SMAJ6.0A	WG	AG	6.0	6.67	7.67	10	800	38.8	10.3
SMAJ 6.5CA	SMAJ 6.5A	WK	AK	6.5	7.22	8.30	10	500	35.7	11.2
SMAJ7.0CA	SMAJ7.0 A	WM	AM	7.0	7.78	8.95	10	200	33.3	12.0
SMAJ 7.5CA	SMAJ 7.5A	WP	AP	7.5	8.33	9.58	1	100	31.0	12.9
SMAJ 8.0CA	SMAJ 8.0A	WR	AR	8.0	8.89	10.23	1	50	29.4	13.6
SMAJ8.5CA	SMAJ8.5 A	WT	AT	8.5	9.44	10.82	1	20	27.7	14.4
SMAJ9.0CA	SMAJ9.0 A	WV	AV	9.0	10.0	11.1	1	5.0	26.0	15.4
SMAJ10CA	SMAJ10 A	WX	AX	10.0	11.10	12.80	1	5	23.5	17.0
SMAJ11CA	SMAJ11 A	WZ	AZ	11.0	12.2	13.5	1	5	22.0	18.2
SMAJ12CA	SMAJ12 A	XE	BE	12.0	13.3	16.3	1	5	18.2	22.0
SMAJ13CA	SMAJ13A	XG	BG	13.0	14.40	16.50	1	5	18.6	21.5
SMAJ14CA	SMAJ14A	XK	BK	14.0	15.6	17.2	1	5	17.2	23.2
SMAJ15CA	SMAJ15A	XM	BM	15.0	16.70	19.20	1	5	16.4	24.4
SMAJ16CA	SMAJ16A	XP	BP	16.0	17.8	19.7	1	5	15.4	26.0
SMAJ17CA	SMAJ17A	XR	BR	17.0	18.90	21.70	1	5	14.5	27.6
SMAJ18CA	SMAJ18A	XT	BT	18.0	20.00	23.30	1	5	13.7	29.2
SMAJ20CA	SMAJ20A	XV	BV	20.0	22.20	25.50	1	5	12.3	32.4
SMAJ22CA	SMAJ22A	XX	BX	22.0	24.4	26.9	1	5	11.3	35.5
SMAJ24CA	SMAJ24A	XZ	BZ	24.0	26.70	30.70	1	5	10.3	38.9
SMAJ26CA	SMAJ26A	YE	CE	26.0	28.90	33.20	1	5	9.5	42.1
SMAJ28CA	SMAJ28A	YG	CG	28.0	31.10	35.80	1	5	8.8	45.4
SMAJ30CA	SMAJ30A	YK	CK	30.0	33.30	38.30	1	5	8.3	48.4
SMAJ33CA	SMAJ33A	YM	CM	33.0	36.70	42.20	1	5	7.5	53.3
SMAJ36CA	SMAJ36A	YP	CP	36.0	40.00	46.00	1	5	6.9	58.1
SMAJ40CA	SMAJ40A	YR	CR	40.0	44.40	51.10	1	5	6.2	64.5
SMAJ43CA	SMAJ43A	YT	CT	43.0	47.80	54.90	1	5	5.7	69.4
SMAJ45CA	SMAJ45A	YV	CV	45.0	50.00	57.50	1	5	5.5	72.7
SMAJ48CA	SMAJ48A	YX	CX	48.0	53.30	61.30	1	5	5.2	77.4
SMAJ51CA	SMAJ51A	YZ	CZ	51.0	56.70	65.20	1	5	4.9	82.4
SMAJ54CA	SMAJ54A	ZE	RE	54.0	60.00	69.00	1	5	4.6	87.1
SMAJ58CA	SMAJ58A	ZG	RG	58.0	64.4	71.2	1	5	4.3	93.6
SMAJ60CA	SMAJ60A	ZK	RK	60.0	66.70	76.70	1	5	4.1	96.8
SMAJ64CA	SMAJ64A	ZM	RM	64.0	71.1	78.6	1	5	3.9	103
SMAJ70CA	SMAJ70A	ZP	RP	70.0	77.80	89.50	1	5	3.5	113.0
SMAJ75CA	SMAJ75A	ZR	RR	75.0	83.30	95.80	1	5	3.3	121.0
SMAJ78CA	SMAJ78A	ZT	RT	78.0	86.70	99.70	1	5	3.2	126.0

SMAJ Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	MARKING		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μ A)	Maximum Peak Pulse Current Ipp(A)	Maximum Clamping Voltage V_C@ I_{pp}(V)
		BI	UNI		Min .V	Max .V				
SMAJ85CA	SMAJ85A	ZV	RV	85.0	94.4	115.0	1	5	2.6	151.0
SMAJ90CA	SMAJ90A	ZX	RX	90.0	100.0	115.50	1	5	2.7	146.0
SMAJ100CA	SMAJ100A	ZZ	RZ	100.0	110.0	128.00	1	5	2.5	162.0
SMAJ110CA	SMAJ110A	VE	SE	110.0	122.0	140.50	1	5	2.3	177.0
SMAJ120CA	SMAJ120A	VG	SG	120.0	133.0	147.0	1	5	2.0	193.0
SMAJ130CA	SMAJ130A	VK	SK	130.0	144.0	165.50	1	5	1.9	209.0
SMAJ150CA	SMAJ150A	VM	SM	150.0	167.0	192.50	1	5	1.6	243.0
SMAJ160CA	SMAJ160A	VP	SP	160.0	178.0	197.0	1	5	1.5	259.0
SMAJ170CA	SMAJ170A	VR	SR	170.0	189.0	217.50	1	5	1.4	275.0
SMAJ180CA	SMAJ180A	VT	ST	180.0	209.0	255.0	1	5	1.2	328.0

SMBJ Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	MARKING		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μ A)	Maximum Peak Pulse Current Ipp(A)	Maximum Clamping Voltage V_C@ I_{pp}(V)
		BI	UNI		Min .V	Max .V				
SMBJ5.0CA	SMBJ5.0A	AE	KE	5.0	6.4	7.25	10	800	65.2	9.2
SMBJ6.0CA	SMBJ6.0A	AG	KG	6.0	6.67	7.67	10	800	58.3	10.3
SMBJ 6.5CA	SMBJ 6.5A	AK	KK	6.5	7.22	8.30	10	500	53.6	11.2
SMBJ7.0CA	SMBJ7.0 A	AM	KM	7.0	7.78	8.95	10	200	50.0	12.0
SMBJ 7.5CA	SMBJ 7.5A	AP	KP	7.5	8.33	9.58	1	100	46.6	12.9
SMBJ 8.0CA	SMBJ 8.0A	AR	KR	8.0	8.89	10.23	1	50	44.1	13.6
SMBJ8.5CA	SMBJ8.5 A	AT	KT	8.5	9.44	10.82	1	20	41.7	14.4
SMBJ9.0CA	SMBJ9.0 A	AV	KV	9.0	10.00	11.50	1	10	39.0	15.4
SMBJ10CA	SMBJ10A	AX	KX	10.0	11.1	12.3	1	10	35.3	17.0
SMBJ11CA	SMBJ11A	AZ	KZ	11.0	12.20	14.00	1	5	33.0	18.2
SMBJ12CA	SMBJ12A	BE	LE	12.0	13.3	14.7	1	5	30.2	19.9
SMBJ13CA	SMBJ13A	BG	LG	13.0	14.40	16.50	1	5	27.9	21.5
SMBJ14CA	SMBJ14A	BK	LK	14.0	15.60	17.2	1	5	25.9	23.2
SMBJ15CA	SMBJ15A	BM	LM	15.0	16.70	19.20	1	5	24.6	24.4
SMBJ16CA	SMBJ16A	BP	LP	16.0	17.8	19.7	1	5	23.1	26.0
SMBJ17CA	SMBJ17A	BR	LR	17.0	18.90	21.70	1	5	21.7	27.6
SMBJ18CA	SMBJ18A	BT	LT	18.0	20.00	23.30	1	5	20.5	29.2
SMBJ20CA	SMBJ20A	BV	LV	20.0	22.20	25.50	1	5	18.5	32.4
SMBJ22CA	SMBJ22A	BX	LX	22.0	24.40	28.00	1	5	16.9	35.5
SMBJ24CA	SMBJ24A	BZ	LZ	24.0	26.70	30.70	1	5	15.2	38.9
SMBJ26CA	SMBJ26A	CE	ME	26.0	28.90	33.20	1	5	14.2	42.1
SMBJ28CA	SMBJ28A	CG	MG	28.0	31.10	35.80	1	5	13.2	45.4
SMBJ30CA	SMBJ30A	CK	MK	30.0	33.30	38.30	1	5	12.4	48.4
SMBJ33CA	SMBJ33A	CM	MM	33.0	36.70	42.20	1	5	11.3	53.3
SMBJ36CA	SMBJ36A	CP	MP	36.0	40.00	46.00	1	5	10.3	58.1
SMBJ40CA	SMBJ40A	CR	MR	40.0	44.40	51.10	1	5	9.3	64.5
SMBJ43CA	SMBJ43A	CT	MT	43.0	47.80	52.80	1	5	8.6	69.4
SMBJ45CA	SMBJ45A	CV	MV	45.0	50.00	57.50	1	5	8.3	72.7
SMBJ48CA	SMBJ48A	CX	MX	48.0	53.3	58.9	1	5	7.8	77.4
SMBJ51CA	SMBJ51A	CZ	MZ	51.0	56.70	65.20	1	5	7.3	82.4
SMBJ54CA	SMBJ54A	DE	NE	54.0	60.0	66.3	1	5	6.9	87.1
SMBJ58CA	SMBJ58A	DG	NG	58.0	64.40	74.10	1	5	6.4	93.6
SMBJ60CA	SMBJ60A	DK	NK	60.0	66.7	73.7	1	5	6.2	96.8
SMBJ64CA	SMBJ64A	DM	NM	64.0	71.10	81.80	1	5	5.8	103.0
SMBJ70CA	SMBJ70A	DP	NP	70.0	77.80	89.50	1	5	5.3	113.0
SMBJ75CA	SMBJ75A	DR	NR	75.0	83.3	92.1	1	5	5.0	121.0

SMBJ Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	MARKING		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μ A)	Maximum Peak Pulse Current Ipp(A)	Maximum Clamping Voltage V_C@ I_{pp}(V)
		BI	UNI		Min .V	Max .V				
SMBJ78CA	SMBJ78A	DT	NT	78.0	86.70	99.70	1	5	4.7	126.0
SMBJ85CA	SMBJ85A	DV	NV	85.0	94.40	108.20	1	5	4.4	137.0
SMBJ90CA	SMBJ90A	DX	NX	90.0	100.0	111.0	1	5	4.1	146.0
SMBJ100CA	SMBJ100A	DZ	NZ	100.0	110.00	128.00	1	5	3.7	162.0
SMBJ110CA	SMBJ110A	EE	PE	110.0	122.00	140.50	1	5	3.4	177.0
SMBJ120CA	SMBJ120A	EG	PG	120.0	133.00	147.00	1	5	3.1	193.0
SMBJ130CA	SMBJ130A	EK	PK	130.0	144.00	165.50	1	5	2.9	209.0
SMBJ150CA	SMBJ150A	EM	PM	150.0	167.00	192.50	1	5	2.5	243.0
SMBJ160CA	SMBJ160A	EP	PP	160.0	178.00	197.00	1	5	2.3	259.0
SMBJ170CA	SMBJ170A	ER	PR	170.0	189.00	217.50	1	5	2.2	275.0
SMBJ180CA	SMBJ180A	ET	PT	180.0	201.00	222.00	1	5	2.1	292.0
SMBJ200CA	SMBJ200A	EV	PV	200.0	224.00	247.00	1	5	1.8	324.0
SMBJ220CA	SMBJ220A	EX	PX	220.0	246.00	272.00	1	5	1.7	356.0
SMBJ350CA	SMBJ350A	FG	QG	350	391	432	1	1	1.1	567

P6SMBJ Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	MARKING		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μ A)	Maximum Peak Pulse Current Ipp(A)	Maximum Clamping Voltage V_C@ I_{pp}(V)
		BI	UNI		Min .V	Max .V				
P6SMB6.8CA	P6SMB6.8A	6V8C	6V8A	5.8	6.45	7.14	10	800	58.1	10.5
P6SMB7.5CA	P6SMB7.5A	7V5C	7V5A	6.4	7.13	7.88	10	500	54.0	11.3
P6SMB 8.2CA	P6SMB8.2A	8V2C	8V2A	7.02	7.79	8.61	10	200	50.4	12.1
P6SMB 9.1CA	P6SMB9.1A	9V1C	9V1A	7.78	8.65	9.55	10	50	45.5	13.4
P6SMB10CA	P6SMB10A	10C	10A	8.55	9.50	10.50	10	10	42.1	14.5
P6SMB11CA	P6SMB11A	11C	11A	9.40	10.50	11.60	1	5	39.1	15.6
P6SMB12CA	P6SMB12A	12C	12A	10.20	11.40	12.60	1	5	36.5	16.70
P6SMB13CA	P6SMB13 A	13C	13A	11.10	12.40	13.70	1	1	33.5	18.2
P6SMB15CA	P6SMB15A	15C	15A	12.80	14.30	15.80	1	1	28.8	21.2
P6SMB16CA	P6SMB16A	16C	16A	13.60	15.20	16.80	1	1	27.1	22.50
P6SMB18CA	P6SMB18A	18C	18A	15.30	17.10	18.90	1	1	24.2	25.5
P6SMB20CA	P6SMB20A	20C	20A	17.10	19.00	21.00	1	1	22.0	27.7
P6SMB22CA	P6SMB22A	22C	22A	18.80	20.90	23.10	1	1	19.9	30.60
P6SMB24CA	P6SMB24A	24C	24A	20.50	22.80	25.20	1	1	18.4	33.2
P6SMB27CA	P6SMB27A	27C	27A	23.10	25.70	28.40	1	1	16.3	37.5
P6SMB30CA	P6SMB30A	30C	30A	28.50	28.50	31.50	1	1	14.7	41.4
P6SMB33CA	P6SMB33A	33C	33A	28.20	31.40	34.70	1	1	13.3	45.70
P6SMB36CA	P6SMB36A	36C	36A	31.40	34.20	37.80	1	1	12.2	49.90
P6SMB39CA	P6SMB39A	39C	39A	33.30	37.10	41.00	1	1	11.3	53.9
P6SMB43CA	P6SMB43A	43C	43A	36.80	40.90	45.20	1	1	10.3	59.30
P6SMB47CA	P6SMB47A	47C	47A	40.20	44.70	49.40	1	1	9.4	64.8
P6SMB51CA	P6SMB51A	51C	51A	43.60	48.50	53.60	1	1	8.7	70.1
P6SMB56CA	P6SMB56A	56C	56A	47.80	53.20	58.80	1	1	7.9	77.7
P6SMB62CA	P6SMB62A	62C	62A	53.00	58.9	65.10	1	1	7.2	85.0
P6SMB68CA	P6SMB68A	68C	68A	58.10	64.60	71.40	1	1	6.6	92.0
P6SMB75CA	P6SMB75A	75C	75A	64.10	71.3	78.00	1	1	5.9	103.0
P6SMB82CA	P6SMB82A	82C	82A	70.10	77.9	86.00	1	1	5.4	113.0
P6SMB91CA	P6SMB91A	91C	91A	77.80	86.5	95.5	1	1	4.9	125.0
P6SMB100CA	P6SMB100A	100C	100A	85.50	95.0	105.0	1	1	4.5	137.0
P6SMB110CA	P6SMB110A	110C	110A	94.00	105.0	116.0	1	1	4.0	152.0
P6SMB120CA	P6SMB120A	120C	120A	102.0	114.0	126.0	1	1	3.7	165.0
P6SMB130CA	P6SMB130A	130C	130A	111.0	124.0	137.0	1	1	3.4	179.0
P6SMB150CA	P6SMB150A	150C	150A	128.0	143.0	158.0	1	1	2.9	207.0

P6SMBJ Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	MARKING		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μ A)	Maximum Peak Pulse Current Ipp(A)	Maximum Clamping Voltage V_C@ I_{pp}(V)
		BI	UNI		Min .V	Max .V				
P6SMB160CA	P6SMB160A	160C	160A	136.0	152.0	168.0	1	1	2.8	219.0
P6SMB170CA	P6SMB170A	170C	170A	145.0	162.0	179.0	1	1	2.6	234.0
P6SMB180CA	P6SMB180A	180C	180A	154.0	171.0	189.00	1	1	2.5	246.0
P6SMB200CA	P6SMB200A	200C	200A	171.0	190.0	210.0	1	1	2.2	274.0

P6KE Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μA)	Maximum Peak Pulse Current I pp (A)	Maximum Clamping Voltage V_C@ I_{pp}(V)
			Min .V	Max .V				
P6KE6.8CA	P6KE6.8A	5.80	6.45	7.14	10	1000	57.3	10.5
P6KE7.5CA	P6KE7.5A	6.40	7.13	7.88	10	500	53.0	11.3
P6KE8.2CA	P6KE8.2A	7.02	7.79	8.61	10	200	50.0	12.1
P6KE9.1CA	P6KE9.1A	7.78	8.65	9.50	1	50	45.0	13.4
P6KE10CA	P6KE10A	8.55	9.50	10.50	1	10	41.0	14.5
P6KE11CA	P6KE11A	9.40	10.50	11.60	1	5	38.0	15.6
P6KE12CA	P6KE12A	10.20	11.40	12.60	1	5	36.0	16.7
P6KE13CA	P6KE13A	11.10	12.40	13.70	1	5	33.0	18.2
P6KE15CA	P6KE15A	12.80	14.30	15.80	1	5	28.0	21.2
P6KE16CA	P6KE16A	13.60	15.20	16.80	1	5	27.0	22.5
P6KE18CA	P6KE18A	15.30	17.10	18.90	1	5	24.0	25.2
P6KE20CA	P6KE20A	17.10	19.00	21.00	1	5	22.0	27.7
P6KE22CA	P6KE22A	18.80	20.90	23.10	1	5	20.0	30.6
P6KE24CA	P6KE24A	20.50	22.80	25.20	1	5	18.0	33.2
P6KE27CA	P6KE27A	23.10	25.70	28.40	1	5	16.0	37.5
P6KE30CA	P6KE30A	25.60	28.50	31.50	1	5	14.4	41.4
P6KE33CA	P6KE33A	28.20	31.40	34.70	1	5	13.2	45.7
P6KE36CA	P6KE36A	30.80	34.20	37.80	1	5	12.0	49.9
P6KE39CA	P6KE39A	33.30	37.10	41.00	1	5	11.2	53.9
P6KE43CA	P6KE43A	36.80	40.90	45.20	1	5	10.1	59.3
P6KE47CA	P6KE47A	40.20	44.70	49.40	1	5	9.3	64.8
P6KE51CA	P6KE51A	43.60	48.5	53.60	1	5	8.6	70.1
P6KE56CA	P6KE56A	47.80	53.20	58.80	1	5	7.8	77.0
P6KE62CA	P6KE62A	53.00	58.90	65.10	1	5	7.1	85.0
P6KE68CA	P6KE68A	58.10	64.60	71.40	1	5	6.5	92.0
P6KE75CA	P6KE75A	64.10	71.30	78.80	1	5	5.8	103.0
P6KE82CA	P6KE82A	70.10	77.90	86.10	1	5	5.3	113.0
P6KE91CA	P6KE91A	77.80	86.50	95.50	1	5	4.8	125.0
P6KE110CA	P6KE110A	94.00	105.00	116.00	1	5	4.0	152.0
P6KE130CA	P6KE130A	111.00	124.00	137.00	1	5	3.3	179.0
P6KE150CA	P6KE150A	128.00	143.00	158.00	1	5	2.9	207.0
P6KE160CA	P6KE160A	136.00	152.00	168.00	1	5	2.7	219.0
P6KE170CA	P6KE170A	145.00	162.00	179.00	1	5	2.6	234.0
P6KE180CA	P6KE180A	154.00	171.00	189.00	1	5	2.4	246.0
P6KE200CA	P6KE200A	171.00	190.00	210.00	1	5	2.2	274.0
P6KE250CA	P6KE250A	214.00	237.00	263.00	1	5	1.8	344.0

P6KE Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μA)	Maximum Peak Pulse Current I pp (A)	Maximum Clamping Voltage V_C@ I_{pp}(V)
			Min .V	Max .V				
P6KE300CA	P6KE300A	256.00	285.00	315.00	1	5	1.5	414.0
P6KE350CA	P6KE350A	300.00	332.00	368.00	1	5	1.3	482.0
P6KE400CA	P6KE400A	342.00	380.00	420.00	1	5	1.1	548.0
P6KE440CA	P6KE440A	376.00	418.00	462.00	1	5	1.04	600.0
P6KE480CA	P6KE480A	408.00	456.00	504.00	1	5	0.9	658.0
P6KE530CA	P6KE530A	450.00	503.00	556.00	1	5	0.8	725.0

SA Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μA)	Maximum Peak Pulse Current I pp (A)	Maximum Clamping Voltage V_C@ I_{pp}(V)
			Min .V	Max .V				
SA5.0CA	SA5.0A	5.0	6.40	7.25	10	600	54.3	9.2
SA6.0CA	SA6.0A	6.0	6.67	7.67	10	600	48.5	10.3
SA6.5CA	SA6.5A	6.5	7.22	8.30	10	400	44.7	12.0
SA7.0CA	SA7.0A	7.0	7.78	8.95	10	150	41.7	150
SA7.5CA	SA7.5A	7.5	8.33	9.58	1	50	38.8	12.9
SA8.0CA	SA8.0A	8.0	8.89	10.23	1	25	36.7	13.6
SA8.5CA	SA8.5A	8.5	9.44	10.82	1	10	34.7	14.4
SA9.0CA	SA9.0A	9.0	10.00	11.50	1	5	32.5	15.4
SA10CA	SA10A	10	11.10	12.80	1	3	29.4	17.0
SA11CA	SA11A	11	11.00	12.20	1	3	27.4	18.2
SA12CA	SA12A	12	13.30	15.30	1	3	25.1	19.9
SA13CA	SA13A	13	14.40	16.50	1	3	23.2	21.5
SA14CA	SA14A	14	15.60	17.90	1	3	21.5	23.2
SA15CA	SA15A	15	16.70	19.20	1	3	20.6	24.4
SA16CA	SA16A	16	17.80	20.50	1	3	19.2	26.0
SA17CA	SA17A	17	18.90	21.70	1	3	16.1	27.6
SA18CA	SA18A	18	20.00	23.30	1	3	17.2	29．2
SA20CA	SA20A	20	22.20	25.50	1	3	15.4	32.4
SA22CA	SA22A	22	24.40	28.00	1	3	14.1	35.5
SA24CA	SA24A	24	26.70	30.70	1	3	12.8	38.9
SA26CA	SA26A	26	28.90	33.20	1	3	11.9	42.1
SA28CA	SA28A	28	31.10	35.80	1	3	11.0	45.4
SA30CA	SA30A	30	33.30	38.30	1	3	10.3	48.4
SA33CA	SA33A	33	36.70	42.20	1	3	9.4	53.3
SA36CA	SA36A	36	40.00	46.00	1	3	8.6	58.1
SA40CA	SA40A	40	44.40	51.10	1	3	7.8	64.5
SA43CA	SA43A	43	47.80	54.90	1	3	7.2	69.4
SA45CA	SA45A	45	50.00	57.50	1	3	6.9	72.7
SA48CA	SA48A	48	53.30	61.30	1	3	6.5	77.4
SA51CA	SA51A	51	56.70	65.20	1	3	6.1	82.4
SA58CA	SA58A	58	64.40	74.10	1	3	5.3	93.6
SA60CA	SA60A	60	66.70	76.70	1	3	5.2	96.8
SA64CA	SA64A	64	71.10	81.80	1	3	4.9	103.0
SA70CA	SA70A	70	77.80	89.50	1	3	4.4	113.0
SA75CA	SA75A	75	83.30	95.80	1	3	4.1	121.0
SA78CA	SA78A	78	86.70	99.70	1	3	4.0	126.0
SA85CA	SA85A	85	94.40	108.20	1	3	3.6	137.0

SA Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μA)	Maximum Peak Pulse Current I pp (A)	Maximum Clamping Voltage V_C@ I_{pp}(V)
			Min .V	Max .V				
SA090CA	SA90A	90	100.00	115.50	1	3	3.4	146.0
SA100CA	SA100A	100	111.00	128.00	1	3	3.1	162.0
SA110CA	SA110A	110	122.00	140.50	1	3	2.8	177.0
SA120CA	SA120A	120	133.00	153.00	1	3	2.4	193.0
SA130CA	SA130A	130	144.00	165.50	1	3	2.1	209.0
SA150CA	SA150A	150	167.00	192.50	1	3	2.0	243.0
SA160CA	SA160A	160	178.00	205.00	1	3	1.9	259.0
SA170CA	SA170A	170	189.00	217.50	1	3	1.8	275.0
SA180CA	SA180A	180	198.00	230.40	1	3	1.7	292.0
SA190CA	SA190A	190	209.00	243.20	1	3	1.6	308.0

SMCJ Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	MARKING		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μA)	Maximum Peak Pulse Current Ipp(A)	Maximum Clamping Voltage V_C@ I_{pp}(V)
		BI	UNI		Min .V	Max .V				
SMCJ5.0CA	SMCJ5.0A	BDE	GDE	5.0	6.4	7.25	10	800	163.0	9.2
SMCJ6.0CA	SMCJ6.0A	BDG	GDG	6.0	6.67	7.67	10	800	145.6	10.3
SMCJ 6.5CA	SMCJ 6.5A	BDK	GDK	6.5	7.22	8.30	10	500	133.9	11.2
SMCJ7.0 CA	SMCJ7.0 A	BDM	GDM	7.0	7.78	8.95	10	200	125.0	12.0
SMCJ 7.5CA	SMCJ 7.5A	BDP	GDP	7.5	8.33	9.58	1	100	116.3	12.9
SMCJ 8.0CA	SMCJ 8.0A	BDR	GDR	8.0	8.89	10.23	1	50	110.3	13.6
SMCJ8.5 CA	SMCJ8.5 A	BDT	GDT	8.5	9.44	10.82	1	20	104.2	14.4
SMCJ9.0 CA	SMCJ9.0 A	BDV	GDV	9.0	10.00	11.50	1	10	97.4	15.4
SMCJ10CA	SMCJ10A	BDX	GDX	10.0	11.1	12.30	1	1	88.2	17.0
SMCJ11CA	SMCJ11A	BDZ	GDZ	11.0	12.20	14.00	1	5	82.4	18.2
SMCJ12CA	SMCJ12A	BEE	GEE	12.0	13.30	14.70	1	5	75.4	19.9
SMCJ13CA	SMCJ13A	BEG	GEG	13.0	14.40	16.50	1	5	69.7	21.5
SMCJ14CA	SMCJ14A	BEK	GEK	14.0	15.60	17.20	1	5	64.7	23.2
SMCJ15CA	SMCJ15A	BEM	GEM	15.0	16.70	19.20	1	5	61.5	24.4
SMCJ16CA	SMCJ16A	BEP	GEP	16.0	17.80	19.70	1	5	57.7	26.0
SMCJ17CA	SMCJ17A	BER	GER	17.0	18.90	21.70	1	5	53.3	27.6
SMCJ18CA	SMCJ18A	BET	GET	18.0	20.00	23.30	1	5	51.4	29.2
SMCJ20CA	SMCJ20A	BEV	GEV	20.0	22.20	25.50	1	5	46.3	32.4
SMCJ22CA	SMCJ22A	BEX	GEX	22.0	24.40	28.00	1	5	42.2	35.5
SMCJ24CA	SMCJ24A	BEZ	GEZ	24.0	26.70	30.70	1	5	38.6	38.9
SMCJ26CA	SMCJ26A	BFE	GFE	26.0	28.90	33.20	1	5	35.6	42.1
SMCJ28CA	SMCJ28A	BFG	GFG	28.0	31.10	35.80	1	5	33.1	45.4
SMCJ30CA	SMCJ30A	BFK	GFK	30.0	33.30	38.30	1	5	31.0	48.4
SMCJ33CA	SMCJ33A	BFM	GFM	33.0	36.70	42.20	1	5	28.1	53.3
SMCJ36CA	SMCJ36A	BFP	GFP	36.0	40.00	46.00	1	5	25.8	58.1
SMCJ40CA	SMCJ40A	BFR	GFR	40.0	44.40	51.10	1	5	23.2	64.5
SMCJ45CA	SMCJ45A	BFV	GFV	45.0	50.00	57.50	1	5	20.6	72.7
SMCJ48CA	SMCJ48A	BFX	GFX	48.0	53.30	58.90	1	1	19.4	77.4
SMCJ51CA	SMCJ51A	BFZ	GFZ	51.0	56.70	65.20	1	5	18.2	82.4
SMCJ54CA	SMCJ54A	BGE	GGE	54.0	60.00	69.00	1	5	17.2	87.1
SMCJ58CA	SMCJ58A	BGG	GGG	58.0	64.4	71.2	1	5	16.0	93.0
SMCJ60CA	SMCJ60A	BGK	GGK	60.0	66.7	73.7	1	5	15.5	96
SMCJ64CA	SMCJ64A	BGM	GGM	64.0	71.10	81.80	1	5	14.6	103.0
SMCJ70CA	SMCJ70A	BGP	GGP	70.0	77.8	95.1	1	5	13.3	113.0
SMCJ75CA	SMCJ75A	BGR	GGR	75.0	83.3	92.1	1	5	12.4	121.0
SMCJ78CA	SMCJ78A	BGT	GGT	78.0	86.70	99.70	1	5	11.4	126.0
SMCJ85CA	SMCJ85A	BGV	GGV	85.0	94.40	108.20	1	5	10.4	137.0

SMCJ Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	MARKING		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μ A)	Maximum Peak Pulse Current Ipp(A)	Maximum Clamping Voltage V_C@ I_{pp}(V)
		BI	UNI		Min .V	Max .V				
SMCJ90CA	SMCJ90A	BGX	GGX	90.0	100.00	115.50	1	5	10.3	146.0
SMCJ100CA	SMCJ100A	BGZ	GGZ	100.0	110.00	128.00	1	5	9.3	162.0
SMCJ110CA	SMCJ110A	BHE	GHE	110.0	122.0	135.0	1	5	8.5	177.0
SMCJ120CA	SMCJ120A	BHG	GHG	120.0	133.00	153.00	1	5	7.9	193.0
SMCJ130CA	SMCJ130A	BHK	GHK	130.0	144.0	176.0	1	5	6.5	231.0
SMCJ150CA	SMCJ150A	BHM	GHM	150.0	167.00	192.50	1	5	6.2	243.0
SMCJ160CA	SMCJ160A	BHP	GHP	160.0	178.0	197.0	1	5	5.8	259.0
SMCJ170CA	SMCJ170A	BHR	GHR	170.0	189.00	217.50	1	5	5.5	275.0
SMCJ180CA	SMCJ180A	BHT	GHT	180.0	198.00	230.40	1	5	5.1	292.0
SMCJ200CA	SMCJ200A	BHV	GHV	200.0	220.00	256.00	1	5	4.6	324.0
SMCJ220CA	SMCJ220A	BHX	GHX	220.0	242.00	281.60	1	5	4.2	356.0
SMCJ250CA	SMCJ250A	BHZ	GHZ	250.0	279.00	309.00	1	5	3.7	405.0
SMCJ300CA	SMCJ300A	BJE	GJE	300.0	335.00	371.00	1	5	3.1	486.0
SMCJ350CA	SMCJ350A	BJG	GJG	350.0	391.00	432.00	1	5	2.6	567.0
SMCJ400CA	SMCJ400A	BJK	GJK	400.0	447.00	494.00	1	5	2.3	648.0

1.5KE Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μA)	Maximum Peak Pulse Current I pp (A)	Maximum Clamping Voltage V_C@ I_{PP}(V)
			Min .V	Max .V				
1.5KE6.8CA	1.5KE6.8A	5.80	6.45	7.14	10	1000	143.0	10.5
1.5KE7.5CA	1.5KE7.5A	6.40	7.13	7.88	10	500	132.0	11.3
1.5KE8.2CA	1.5KE8.2A	7.02	7.79	8.61	10	200	124.0	12.1
1.5KE10CA	1.5KE10A	8.55	9.50	10.50	1	10	103.0	14.5
1.5KE11CA	1.5KE11A	9.40	10.50	11.60	1	5	96.0	15.6
1.5KE12CA	1.5KE12A	10.20	11.40	12.60	1	5	90.0	16.7
1.5KE13CA	1.5KE13A	11.10	12.40	13.70	1	5	82.0	18.2
1.5KE15CA	1.5KE15A	12.80	14.30	15.80	1	5	71.0	21.2
1.5KE16CA	1.5KE16A	13.60	15.20	16.80	1	5	67.0	22.5
1.5KE18CA	1.5KE18A	15.30	17.10	18.90	1	5	59.5	25.2
1.5KE20CA	1.5KE20A	17.10	19.00	21.00	1	5	54.0	27.7
1.5KE22CA	1.5KE22A	18.80	20.90	23.10	1	5	49.0	30.6
1.5KE24CA	1.5KE24A	20.50	22.80	25.20	1	5	45.0	33.2
1.5KE27CA	1.5KE27A	23.10	25.70	28.40	1	5	40.0	37.5
1.5KE30CA	1.5KE30A	25.60	28.50	31.50	1	5	36.0	41.4
1.5KE33CA	1.5KE33A	28.20	31.40	34.70	1	5	33.0	45.7
1.5KE36CA	1.5KE36A	30.80	34.20	37.80	1	5	30.0	49.9
1.5KE39CA	1.5KE39A	33.30	37.10	41.00	1	5	28.0	53.9
1.5KE43CA	1.5KE43A	36.80	40.90	45.20	1	5	25.3	59.3
1.5KE47CA	1.5KE47A	40.20	44.70	49.40	1	5	23.2	64.8
1.5KE51CA	1.5KE51A	43.60	48.5	53.60	1	5	21.4	70.1
1.5KE56CA	1.5KE56A	47.80	53.20	58.80	1	5	19.5	77.0
1.5KE62CA	1.5KE62A	53.00	58.90	65.10	1	5	17.7	85.0
1.5KE68CA	1.5KE68A	58.10	64.60	71.40	1	5	16.3	92.0
1.5KE75CA	1.5KE75A	64.10	71.30	78.80	1	5	14.6	103.0
1.5KE82CA	1.5KE82A	70.10	77.90	86.10	1	5	13.3	113.0
1.5KE91CA	1.5KE91A	77.80	86.50	95.50	1	5	12.0	125.0
1.5KE100CA	1.5KE100A	85.50	95.00	105.00	1	5	11.0	137.0
1.5KE120CA	1.5KE120A	102.00	114.00	126.00	1	5	9.1	165.0
1.5KE130CA	1.5KE130A	111.00	124.00	137.00	1	5	8.4	179.0
1.5KE150CA	1.5KE150A	128.00	143.00	158.00	1	5	7.2	207.0
1.5KE160CA	1.5KE160A	136.00	152.00	168.00	1	5	6.8	219.0
1.5KE180CA	1.5KE180A	154.00	171.00	189.00	1	5	6.1	246.0
1.5KE200CA	1.5KE200A	171.00	190.00	210.00	1	5	5.5	274.0
1.5KE250CA	1.5KE250A	214.00	237.00	263.00	1	5	4.5	344.0
1.5KE300CA	1.5KE300A	256.00	285.00	315.00	1	5	3.8	414.0
1.5KE350CA	1.5KE350A	300.00	332.00	368.00	1	5	3.2	482.0

1.5KE Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μA)	Maximum Peak Pulse Current I pp (A)	Maximum Clamping Voltage V_C@ I_{pp}(V)
			Min .V	Max .V				
1.5KE400CA	1.5KE400A	342.00	380.00	420.00	1	5	2.8	548.0
1.5KE440CA	1.5KE440A	376.00	418.00	462.00	1	5	2.6	600.0
1.5KE480CA	1.5KE480A	408.00	456.00	504.00	1	5	2.3	658.0
1.5KE540CA	1.5KE540A	459.00	513.00	567.00	1	5	2.0	740.0
1.5KE550CA	1.5KE550A	467.00	522.50	577.50	1	5	2.0	760.0

SMDJ Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	MARKING		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μA)	Maximum Peak Pulse Current Ipp(A)	Maximum Clamping Voltage V_C@ I_{pp}(V)
		BI	UNI		Min .V	Max .V				
SMDJ5.0CA	SMDJ5.0A	DDE	RDE	5.0	6.4	7.00	10	800	326.1	9.2
SMDJ6.0CA	SMDJ6.0A	DDG	RDG	6.0	6.67	7.37	10	800	291.3	10.3
SMDJ 6.5CA	SMDJ 6.5A	DDK	RDK	6.5	7.22	7.98	10	500	267.9	11.2
SMDJ7.0 CA	SMDJ7.0 A	DDM	PDM	7.0	7.78	8.60	10	200	250.0	12.0
SMDJ 7.5CA	SMDJ 7.5A	DDP	PDP	7.5	8.33	9.21	1	100	232.6	12.9
SMDJ 8.0CA	SMDJ 8.0A	DDR	PDR	8.0	8.89	10.12	1	50	220.6	13.6
SMDJ8.5 CA	SMDJ8.5 A	DDT	PDT	8.5	9.44	10.40	1	20	208.4	14.4
SMDJ9.0 CA	SMDJ9.0 A	DDV	PDV	9.0	10.00	11.10	1	10	194.8	15.4
SMDJ10CA	SMDJ10A	DDX	PDX	10.0	11.10	12.30	1	5	176.5	17.0
SMDJ11CA	SMDJ11A	DDZ	PDZ	11.0	12.20	14.80	1	2	164.8	18.2
SMDJ12CA	SMDJ12A	DEE	PEE	12.0	13.30	14.70	1	2	150.8	19.9
SMDJ13CA	SMDJ13A	DEG	PEG	13.0	14.40	15.90	1	2	139.4	21.5
SMDJ14CA	SMDJ14A	DEK	PEK	14.0	15.60	17.20	1	2	129.4	23.2
SMDJ15CA	SMDJ15A	DEM	PEM	15.0	16.70	18.50	1	2	115.4	24.4
SMDJ16CA	SMDJ16A	DEP	PEP	16.0	17.80	19.70	1	2	115.4	26.0
SMDJ17CA	SMDJ17A	DER	PER	17.0	18.90	20.90	1	2	108.7	27.6
SMDJ18CA	SMDJ18A	DET	PET	18.0	20.00	22.10	1	2	102.7	29.2
SMDJ20CA	SMDJ20A	DEV	PEV	20.0	22.20	24.50	1	2	92.6	32.4
SMDJ22CA	SMDJ22A	DEX	PEX	22.0	24.40	26.90	1	2	84.5	35.5
SMDJ24CA	SMDJ24A	DEZ	PEZ	24.0	26.70	29.50	1	2	77.2	38.9
SMDJ26CA	SMDJ26A	DFE	PFE	26.0	28.90	31.90	1	2	71.2	42.1
SMDJ28CA	SMDJ28A	DFG	PFG	28.0	31.10	34.40	1	2	66.2	45.4
SMDJ30CA	SMDJ30A	DFK	PFK	30.0	33.30	36.80	1	2	62.0	48.4
SMDJ33CA	SMDJ33A	DFM	PFM	33.0	36.70	40.60	1	2	56.3	53.3
SMDJ36CA	SMDJ36A	DFP	PFP	36.0	40.00	44.20	1	2	51.6	58.1
SMDJ40CA	SMDJ40A	DFR	PFR	40.0	44.40	49.10	1	2	46.4	64.5
SMDJ43CA	SMDJ43A	DFT	PFT	43.0	47.80	52.80	1	2	69.4	43.2
SMDJ45CA	SMDJ45A	DFV	PFV	45.0	50.00	55.30	1	2	41.2	72.7
SMDJ48CA	SMDJ48A	DFX	PFX	48.0	53.30	58.90	1	2	38.8	77.4
SMDJ51CA	SMDJ51A	DFZ	PFZ	51.0	56.70	62.70	1	2	36.4	82.4
SMDJ54CA	SMDJ54A	DGE	RGE	54.0	60.00	66.30	1	2	34.4	87.1
SMDJ58CA	SMDJ58A	DGG	PGG	58.0	64.40	71.20	1	2	32.0	93.0
SMDJ60CA	SMDJ60A	DGK	PGK	60.0	66.70	73.70	1	2	31.0	96
SMDJ64CA	SMDJ64A	DGM	PGM	64.0	71.10	78.60	1	2	29.2	103.0
SMDJ70CA	SMDJ70A	DGP	PGP	70.0	77.80	86.00	1	2	26.6	113.0

SMDJ Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	MARKING		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μA)	Maximum Peak Pulse Current Ipp(A)	Maximum Clamping Voltage V_C@ I_{PP}(V)
		BI	UNI		Min .V	Max .V				
SMDJ75CA	SMDJ75A	DGR	PGR	75.0	83.30	92.10	1	2	24.8	121.0
SMDJ78CA	SMDJ78A	DGT	PGT	78.0	86.70	95.80	1	2	22.8	126.0
SMDJ85CA	SMDJ85A	DGV	PGV	85.0	94.40	104.00	1	2	20.8	137.0
SMDJ90CA	SMDJ90A	DGX	PGX	90.0	100.00	111.00	1	2	20.6	146.0
SMDJ100CA	SMDJ100A	DGZ	PGZ	100.0	110.00	123.00	1	2	18.5	162.0
SMDJ110CA	SMDJ110A	DHE	PHE	110.0	122.00	135.00	1	2	16.9	177.0
SMDJ120CA	SMDJ120A	DHG	PHG	120.0	133.00	147.00	1	2	15.8	193.0
SMDJ130CA	SMDJ130A	DHK	PHK	130.0	144.00	159.00	1	2	13.0	231.0
SMDJ150CA	SMDJ150A	DHM	PHM	150.0	167.00	185.00	1	2	12.4	243.0
SMDJ160CA	SMDJ160A	DHP	PHP	160.0	178.00	197.00	1	2	11.6	259.0
SMDJ170CA	SMDJ170A	DHR	PHR	170.0	189.00	209.00	1	2	11.0	275.0

3KP Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μA)	Maximum Peak Pulse Current I pp (A)	Maximum Clamping Voltage V_C@ I_{pp}(V)
			Min .V	Max .V				
3.0KP5.0CA	3.0KP5.0A	5.00	6.40	7.25	50	5000	326.0	9.2
3.0KP6.0CA	3.0KP6.0A	6.00	6.67	7.37	50	5000	291.0	10.3
3.0KP8.0A	3.0KP8.0	8.00	8.99	10.23	5	150	220.6	13.6
3.0KP10CA	3.0KP10A	10.0	11.10	12.30	5	15	176.5	17.0
3.0KP11CA	3.0KP11A	11.0	12.20	13.50	5	15	164.8	18.2
3.0KP12CA	3.0KP12A	12.0	13.30	14.70	5	2	150.8	19.9
3.0KP15CA	3.0KP15A	15.0	16.70	18.50	5	2	123.0	24.4
3.0KP16CA	3.0KP16A	16.0	17.80	19.70	5	2	115.4	26.0
3.0KP18CA	3.0KP18A	18.0	20.00	22.10	5	2	102.7	29.2
3.0KP20CA	3.0KP20A	20.0	22.20	24.50	5	2	92.6	32.4
3.0KP22CA	3.0KP22A	22.0	24.40	26.90	5	2	84.5	35.5
3.0KP24CA	3.0KP24A	24.0	26.70	29.50	5	2	77.1	38.9
3.0KP26CA	3.0KP26A	26.0	28.90	31.90	5	2	71.3	42.1
3.0KP28CA	3.0KP28A	28.0	31.10	34.40	5	2	66.1	45.4
3.0KP30CA	3.0KP30A	30.0	33.30	36.80	5	2	62.0	48.4
3.0KP33CA	3.0KP33A	33.0	36.70	40.60	5	2	53.3	56.3
3.0KP36CA	3.0KP36A	36.0	40.00	44.20	5	2	51.6	58.1
3.0KP40CA	3.0KP40A	40.0	44.40	49.10	5	2	46.5	64.5
3.0KP43CA	3.0KP43A	43.0	47.80	52.80	5	2	43.2	69.4
3.0KP48CA	3.0KP48A	48.0	53.30	58.90	5	2	38.8	77.4
3.0KP51CA	3.0KP51A	51.0	56.70	62.70	5	2	36.4	82.4
3.0KP54 CA	3.0KP54 A	54.0	60.00	66.30	5	2	34.4	87.1
3.0KP60CA	3.0KP60A	60.0	66.70	73.70	5	2	31.0	96.8
3.0KP64CA	3.0KP64A	64.0	71.10	78.60	5	2	29.1	103.0
3.0KP70CA	3.0KP70A	70.0	77.80	86.00	5	2	26.5	113.0
3.0KP75CA	3.0KP75A	75.0	83.30	92.10	5	2	24.8	121.0
3.0KP90CA	3.0KP90A	90.0	100.00	111.00	5	2	20.5	146.0
3.0KP100CA	3.0KP100A	100.0	111.00	123.00	5	2	18.5	162.0
3.0KP120CA	3.0KP120A	120.0	133.00	147.00	5	2	15.5	193.0
3.0KP130CA	3.0KP130A	130.0	144.00	159.00	5	2	14.4	209.0
3.0KP150CA	3.0KP150A	150.0	167.00	185.00	5	2	12.3	243.0
3.0KP160CA	3.0KP160A	160.0	178.00	197.00	5	2	11.6	259.0
3.0KP180CA	3.0KP180A	180.0	200.00	221.00	5	2	10.4	289.0
3.0KP200CA	3.0KP200A	200.0	222.00	246.00	5	2	9.1	329.2
3.0KP220CA	3.0KP220A	220.0	244.00	270.00	5	2	8.1	371.1

5.0SMDJ Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	MARKING		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μA)	Maximum Peak Pulse Current Ipp(A)	Maximum Clamping Voltage V_C@ I_{pp}(V)
		BI	UNI		Min .V	Max .V				
5.0SMDJ12A	5.0SMDJ12CA	5PEP	5BEP	12.0	13.30	14.70	10	800	252.00	19.9
5.0SMDJ13A	5.0SMDJ13CA	5PEQ	5BEQ	13.0	14.40	15.90	10	500	233.00	21.5
5.0SMDJ14A	5.0SMDJ14CA	5PER	5BER	14.0	15.60	17.20	10	200	216.00	23.2
5.0SMDJ15A	5.0SMDJ15CA	5PES	5BES	15.0	16.70	18.50	1	100	205.00	24.4
5.0SMDJ16A	5.0SMDJ16CA	5PET	5BET	16.0	17.80	19.70	1	50	193.00	26.0
5.0SMDJ17A	5.0SMDJ17CA	5PEU	5BEU	17.0	18.90	20.90	1	20	181.00	27.6
5.0SMDJ18A	5.0SMDJ18CA	5PEV	5BEV	18.0	20.00	22.10	1	10	172.00	29.2
5.0SMDJ20A	5.0SMDJ20CA	5PEW	5BEW	20.0	22.20	24.50	1	5	155.00	32.4
5.0SMDJ22A	5.0SMDJ22CA	5PEX	5BEX	22.0	24.40	26.90	1	5	141.00	35.5
5.0SMDJ24A	5.0SMDJ24CA	5PEZ	5BEZ	24.0	26.70	29.50	1	5	129.00	38.9
5.0SMDJ26A	5.0SMDJ26CA	5PFE	5BFE	26.0	28.90	31.90	1	5	119.00	42.1
5.0SMDJ28A	5.0SMDJ28CA	5PFG	5BFG	28.0	31.10	34.40	1	5	110.00	45.4
5.0SMDJ30A	5.0SMDJ30CA	5PFK	5BFK	30.0	33.30	36.80	1	5	103.00	48.4
5.0SMDJ33A	5.0SMDJ33CA	5PFM	5BFM	33.0	36.70	40.60	1	5	93.90	53.3
5.0SMDJ36A	5.0SMDJ36CA	5PFP	5BFP	36.0	40.00	44.20	1	5	86.10	58.1
5.0SMDJ40A	5.0SMDJ40CA	5PFR	5BFR	40.0	44.40	49.10	1	5	77.60	64.5
5.0SMDJ43A	5.0SMDJ43CA	5PFT	5BFT	43.0	47.80	52.80	1	5	72.10	69.4
5.0SMDJ45A	5.0SMDJ45CA	5PFV	5BFV	45.0	50.00	55.30	1	5	68.80	72.7
5.0SMDJ48A	5.0SMDJ48CA	5PFX	5BFX	48.0	53.30	58.90	1	5	64.70	77.4
5.0SMDJ51A	5.0SMDJ51CA	5PFZ	5BFZ	51.0	56.70	62.70	1	5	60.70	82.4
5.0SMDJ54A	5.0SMDJ54CA	5PGE	5BGE	54.0	60.00	66.30	1	5	57.50	87.1
5.0SMDJ58A	5.0SMDJ58CA	5PGG	5BGG	58.0	64.40	71.20	1	5	53.50	93.6
5.0SMDJ60A	5.0SMDJ60CA	5PGK	5BGK	60.0	66.70	73.70	1	5	51.70	96.8
5.0SMDJ64A	5.0SMDJ64CA	5PGM	5BGM	64.0	71.10	78.60	1	5	48.60	103.0
5.0SMDJ70A	5.0SMDJ70CA	5PGP	5BGB	70.0	77.80	86.00	1	5	44.30	113.0
5.0SMDJ75A	5.0SMDJ75CA	5PGR	5BGR	75.0	83.30	92.10	1	5	41.40	121.0
5.0SMDJ78A	5.0SMDJ78CA	5PGT	5BGT	78.0	86.70	95.80	1	5	39.70	126.0
5.0SMDJ85A	5.0SMDJ85CA	5PGV	5BGV	85.0	94.40	104.00	1	5	36.50	137.0
5.0SMDJ90A	5.0SMDJ90CA	5PGX	5BGX	90.0	100.00	111.00	1	5	34.30	146.0
5.0SMDJ100A	5.0SMDJ100CA	5PGZ	5BGZ	100.0	111.00	123.00	1	5	30.90	162.0
5.0SMDJ110A	5.0SMDJ110CA	5PHE	5BHE	110.0	122.00	135.00	1	5	28.30	177.0
5.0SMDJ120A	5.0SMDJ120CA	5PHG	5BHG	120.0	133.00	147.00	1	5	26.00	193.0
5.0SMDJ130A	5.0SMDJ130CA	5PHK	5BHK	130.0	144.00	159.00	1	5	24.00	209.0
5.0SMDJ150A	5.0SMDJ150CA	5PHM	5BHM	150.0	167.00	185.00	1	5	20.60	243.0
5.0SMDJ160A	5.0SMDJ160CA	5PHP	5BHB	160.0	178.00	197.00	1	5	19.30	259.0
5.0SMDJ170A	5.0SMDJ170CA	5PHR	5BHR	170.0	189.00	209.00	1	5	18.20	275.0

5KP Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μA)	Maximum Peak Pulse Current I pp (A)	Maximum Clamping Voltage V_C@ I_{pp}(V)
			Min .V	Max .V				
5.0KP5.0CA	5.0KP5.0A	5.00	6.40	7.00	50	5000	554.3	9.2
5.0KP6.0CA	5.0KP6.0A	6.00	6.67	7.37	50	5000	495.1	10.3
5.0KP8.0A	5.0KP8.0	8.00	8.99	10.23	5	150	375.0	13.6
5.0KP10CA	5.0KP10A	10.0	11.10	12.80	5	15	354.2	17.0
5.0KP11CA	5.0KP11A	11.0	12.20	13.50	5	15	280.2	18.2
5.0KP12CA	5.0KP12A	12.0	13.30	14.70	5	2	256.3	19.9
5.0KP15CA	5.0KP15A	15.0	16.70	18.50	5	2	209.0	24.4
5.0KP16CA	5.0KP16A	16.0	17.80	19.70	5	2	196.2	26.0
5.0KP18CA	5.0KP18A	18.0	20.00	22.10	5	2	174.7	29.2
5.0KP20CA	5.0KP20A	20.0	22.20	24.50	5	2	157.4	32.4
5.0KP22CA	5.0KP22A	22.0	24.40	26.90	5	2	143.7	35.5
5.0KP24CA	5.0KP24A	24.0	26.70	29.50	5	2	131.1	38.9
5.0KP26CA	5.0KP26A	26.0	28.90	31.90	5	2	121.1	42.1
5.0KP28CA	5.0KP28A	28.0	31.10	34.40	5	2	112.3	45.4
5.0KP30CA	5.0KP30A	30.0	33.30	36.80	5	2	105.4	48.4
5.0KP33CA	5.0KP33A	33.0	36.70	40.60	5	2	95.7	56.3
5.0KP36CA	5.0KP36A	36.0	40.00	44.20	5	2	87.7	58.1
5.0KP40CA	5.0KP40A	40.0	44.40	49.10	5	2	79.1	64.5
5.0KP43CA	5.0KP43A	43.0	47.80	52.80	5	2	73.5	69.4
5.0KP48CA	5.0KP48A	48.0	53.30	58.90	5	2	65.9	77.4
5.0KP51CA	5.0KP51A	51.0	56.70	62.70	5	2	61.9	82.4
5.0KP54 CA	5.0KP54 A	54.0	60.00	66.30	5	2	58.6	87.1
5.0KP60CA	5.0KP60A	60.0	66.70	73.70	5	2	52.7	96.8
5.0KP64CA	5.0KP64A	64.0	71.10	78.60	5	2	49.5	103.0
5.0KP70CA	5.0KP70A	70.0	77.80	86.00	5	2	45.1	113.0
5.0KP75CA	5.0KP75A	75.0	83.30	92.10	5	2	42.1	121.0
5.0KP90CA	5.0KP90A	90.0	100.00	111.00	5	2	34.9	146.0
5.0KP100CA	5.0KP100A	100.0	111.00	123.00	5	2	31.5	162.0
5.0KP120CA	5.0KP120A	120.0	133.00	147.00	5	2	26.4	193.0
5.0KP130CA	5.0KP130A	130.0	144.00	159.00	5	2	24.2	209.0
5.0KP150CA	5.0KP150A	150.0	167.00	185.00	5	2	21.0	243.0
5.0KP160CA	5.0KP160A	160.0	178.00	197.00	5	2	19.7	259.0
5.0KP180CA	5.0KP180A	180.0	200.00	221.00	5	2	17.5	292.0
5.0KP200CA	5.0KP200A	200.0	222.00	246.00	5	2	15.5	329.2
5.0KP220CA	5.0KP220A	220.0	244.00	270.00	5	2	13.7	371.1

15KP Series Electrical Characteristics(TA=25℃ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μA)	Maximum Peak Pulse Current I pp (A)	Maximum Clamping Voltage V_C@ I_{pp}(V)
			Min .V	Max .V				
15KP12CA	15KP12A	12.0	13.30	14.70	50	10,000	658.0	22.2
15KP15CA	15KP15A	15.0	16.70	18.50	50	8,000	526.0	26.9
15KP16CA	15KP16A	16.0	17.80	19.70	50	8,000	493.0	28.2
15KP18CA	15KP18A	18.0	20.00	22.10	50	8,000	439.0	34.2
15KP20CA	15KP20A	20.0	22.20	24.50	50	1500	396.0	37.9
15KP22CA	15KP22A	22.0	24.40	26.90	50	500	365.0	41.4
15KP24CA	15KP24A	24.0	26.70	29.50	50	150	333.0	45.0
15KP26CA	15KP26A	26.0	28.90	31.90	50	50	308.0	48.7
15KP28CA	15KP28A	28.0	31.10	34.40	50	25	288.2	52.4
15KP30CA	15KP30A	30.0	33.30	36.80	50	15	268.7	56.2
15KP33CA	15KP33A	33.0	36.70	40.60	50	10	249.6	60.5
15KP36CA	15KP36A	36.0	40.00	44.20	50	10	228.4	66.1
15KP40CA	15KP40A	40.0	44.40	49.10	50	10	207.4	72.8
15KP43CA	15KP43A	43.0	47.80	52.80	50	10	196.4	76.9
15KP48CA	15KP48A	48.0	53.30	58.90	50	10	176.2	85.7
15KP51CA	15KP51A	51.0	56.70	62.70	50	10	165.0	91.5
15KP54 CA	15KP54 A	54.0	60.00	66.30	50	10	156.6	96.8
15KP60CA	15KP60A	60.0	66.70	73.70	50	10	141.0	107.1
15KP64CA	15KP64A	64.0	71.10	78.60	50	10	130.8	115.4
15KP70CA	15KP70A	70.0	77.80	86.00	50	10	119.7	126.1
15KP75CA	15KP75A	75.0	83.30	92.10	50	10	111.8	135.1
15KP90CA	15KP90A	90.0	100.00	111.00	50	10	94.6	159.6
15KP100CA	15KP100A	100.0	111.00	123.00	50	10	93.6	161.3
15KP120CA	15KP120A	120.0	133.00	147.00	50	10	70.5	214.3
15KP130CA	15KP130A	130.0	144.00	159.00	50	10	65.4	230.8
15KP150CA	15KP150A	150.0	167.00	185.00	50	10	56.4	267.9
15KP160CA	15KP160A	160.0	178.00	197.00	50	10	52.3	288.5
15KP180CA	15KP180A	180.0	200.00	221.00	50	10	47.3	319.1
15KP200CA	15KP200A	200.0	222.00	246.00	50	10	42.3	357.0
15KP220CA	15KP220A	220.0	244.00	270.00	50	10	38.3	394.7

HE Series Electrical Characteristics(TA=25℃ unless otherwise noted)

PART NUMBER		REVERSE STAND-OFF VOLTAGE	BREHEDOWN VOLTAGE MIN.@It	BREHEDOWN VOLTAGE MAX.@It	TEST CURRENT	MAXIMUM CLAMPING VOLTAGE @Ipp	PEHE PULSE CURRENT@8*20us wave form	REVERSE LEHEAGE @Vrwm
UNI-POLAR	BI-POLAR	VRWM(V)	VBR min(V)	VBR max(V)	IT(mA)	Vc(v)	IPP(A)	IR(uA)
HE1-076	HE1-076C	76	85.5	94.5	10	140	1000	10
HE1-380	HE1-380C	380	401	443	10	577	1000	10
HE6-058	HE6-058C	58	64	70	10	110	6000	10
HE6-076	HE6-076C	76	85	95	10	140	6000	10
HE6-170	HE6-170C	170	189.7	210	10	260	6000	10
HE6-190	HE6-190C	190	200	245	10	290	6000	10
HE6-240	HE6-240C	240	254.1	280.8	10	520	6000	10
HE6-380	HE6-380C	380	401	443	10	520	6000	10
HE6-430	HE6-430C	430	440	490	10	625	6000	10
HE10-058	HE10-058C	58	64	70	10	110	10000	10
HE10-076	HE10-076C	76	85.5	94.5	10	140	10000	10
HE10-170	HE10-170C	170	189.7	210	10	260	10000	10
HE10-190	HE10-190C	190	200	245	10	290	10000	10
HE10-220	HE10-220C	220	230	270	10	330	10000	10
HE10-240	HE10-240C	240	254.1	280.8	10	340	10000	10
HE10-250	HE10-250C	250	263.2	290.9	10	413	10000	20
HE10-380	HE10-380C	380	401	443	10	520	10000	10
HE10-430	HE10-430C	430	440	490	10	625	10000	10
HE10-530	HE10-530C	530	559	619	10	725	10000	10
HE15-058	HE15-058C	58	64	70	10	110	15000	10
HE15-076	HE15-076C	76	85	95	10	150	15000	10

SE Series Electrical Characteristics(TA=25℃ unless otherwise noted)

MAX PART NUMBER	REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE MIN.@It	BREAKDOWN VOLTAGE MAX.@It	TEST CURRENT	MAXIMUM CLAMPING VOLTAGE @Ipp	Peak pulse current @10*1000us wave form	PEAK PULSE CURRENT@8*20us wave form	REVERSE LEAKAGE @Vrwm
BI-POLAR	VRWM(V)	VBR min(V)	VBR max(V)	IT(mA)	Vc(v)	IPP(A)	IPP(A)	IR(uA)
SE-25	22.5	23.75	26.25	1	33.3	721.8	12000	100
SE-30	27	28.5	31.50	1	39.9	902.3	12000	150
SE-37.5	33.75	35.63	39.38	50	49.9	1403.3	14000	2000
SE-40	36	38.00	42.00	1	53.2	902.3	12000	150
SE-45	40.5	42.75	47.25	50	59.9	1403.3	14000	2000
SE-50	45	47	52.5	1	66.5	721.8	12000	100
SE-51	45.9	48.45	53.55	1	67.8	442.8	10000	100
SE-100	90	95	105	1	133	721.8	12000	100
SE-200	180	190	210	1	266	721.8	12000	100
SE-225	202.5	213.75	236.25	1	299.3	721.8	12000	100
SE-260	234	247	273	1	345.8	462,7	10000	100
SE-277	249.3	263.15	290.85	1	368.4	434.3	10000	100
SE-370	333	351.5	388.5	1	492.1	325.1	10000	100
SE-380	342	361	399	1	505.4	356.2	10000	100
SE-422	379.8	400.9	443.1	1	561.3	228.1	8000	100
SE-450	405	427.5	472.5	1	598.5	721.8	12000	100
SE-470	423	446.5	493.5	1	625.1	204.8	8000	100