



E480232

Features

- For Surface Mount Applications
- Excellent Clamping Capability
- High Temp Soldering: 260°C / 10 Seconds At Terminals
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note2) ("P" Suffix Designates RoHS Compliant. See Ordering Information)
- ESD protection of data lines in accordance with IEC 61000-4-2, ±30kV(Air), ±30kV (Contact)

Maximum Ratings

Parameter	Symbol	Value	Unit
Peak Pulse Power Surge Current with a 10/1000µs Waveform (Note 3)	I_{PPM}	See Next Table	A
Peak Pulse Power Dissipation (Note 3)	P_{PPM}	400	W
Power Dissipation on Infinite Heatsink at $T_L = 75^\circ\text{C}$	P_D	1.5	W
Peak Forward Surge Current Unidirectional Only (Note 4)	I_{FSM}	40	A
Operating Junction Temperature Range	T_J	-55 to +175	°C
Storage Temperature Range	T_{STG}	-55 to +175	°C

Internal Structure

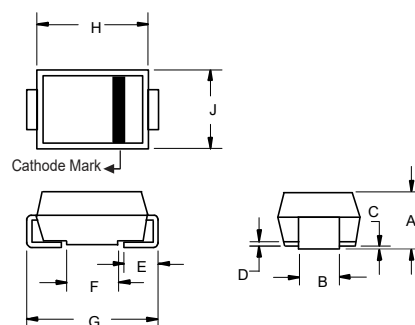
Description	Simplified outline	Graphic symbol
Uni-directional		
Bi-directional		

XXXX = Marking code

- : The locations of the dots represent different product lines

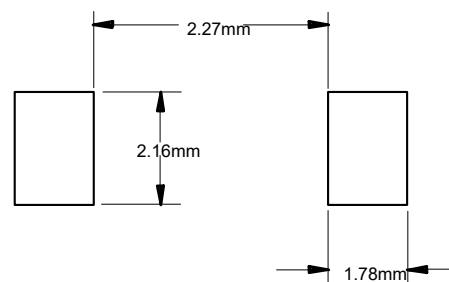
400Watt TVS
5.0 to 440
Volts

SMA (DO-214AC) LEAD FRAME



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.075	0.090	1.90	2.30	
B	0.050	0.064	1.27	1.63	
C	0.002	0.008	0.051	0.203	
D	---	0.020	---	0.51	
E	0.030	0.060	0.76	1.52	
F	0.065	0.091	1.65	2.32	
G	0.189	0.220	4.80	5.59	
H	0.157	0.187	4.00	4.75	
J	0.090	0.115	2.25	2.92	

SUGGESTED SOLDER PAD LAYOUT



Electrical Characteristics and Thermal Characteristics

Parameter	Symbol	Value	Unit
Maximum instantaneous forward voltage @ at 25A for unidirectional only (Note 5)	V_F	3.5/5.0	V
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	30	°C/W
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	120	°C/W
Typical Thermal Resistance Junction to Case	$R_{\theta JC}$	20	°C/W

Note:

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. High Temperature Solder Exemption Applied, see EU Directive Annex 7a.
3. Non-repetitive current pulse, per Fig.3 and derated above $T_A=25\text{ }^{\circ}\text{C}$ per Fig.4.
4. 8.3ms, single half sine wave duty cycle = 4 pulses per Minutes maximum, for unidirectional device only.
5. $V_F<3.5\text{V}$ for devices of $V_{BR}<200\text{V}$ and $V_F<5.0\text{V}$ for devices of $V_{BR}>201\text{V}$.
6. Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal.

Electrical Characteristics @ 25°C Unless Otherwise Specified

MCC Part Number		Working Peak Reverse Voltage	Breakdown Voltage V_{BR} @ I_T			Maximum Clamping Voltage @ I_{PP}	Maximum Reverse Surge Current	Maximum Reverse Leakage @ V_{RWM}	Device Marking Code	
(Uni)	(Bi)	$V_{RWM}(V)$	Min (V)	Max (V)	I_T (mA)	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$	Uni	Bi
SMAJ5.0A	SMAJ5.0CA	5.0	6.40	7.00	10	9.2	43.5	800	AE	WE
SMAJ6.0A	SMAJ6.0CA	6.0	6.67	7.37	10	10.3	38.8	800	AG	WG
SMAJ6.5A	SMAJ6.5CA	6.5	7.22	7.98	10	11.2	35.7	500	AK	WK
SMAJ7.0A	SMAJ7.0CA	7.0	7.78	8.60	10	12.0	33.3	200	AM	WM
SMAJ7.5A	SMAJ7.5CA	7.5	8.33	9.21	1	12.9	31.0	100	AP	WP
SMAJ8.0A	SMAJ8.0CA	8.0	8.89	9.83	1	13.6	29.4	50	AR	WR
SMAJ8.5A	SMAJ8.5CA	8.5	9.44	10.40	1	14.4	27.7	20	AT	WT
SMAJ9.0A	SMAJ9.0CA	9.0	10.00	11.10	1	15.4	26.0	10	AV	WV
SMAJ10A	SMAJ10CA	10.0	11.10	12.30	1	17.0	23.5	5	AX	WX
SMAJ11A	SMAJ11CA	11.0	12.20	13.50	1	18.2	22.0	1	AZ	WZ
SMAJ12A	SMAJ12CA	12.0	13.30	14.70	1	19.9	20.1	1	BE	XE
SMAJ13A	SMAJ13CA	13.0	14.40	15.90	1	21.5	18.6	1	BG	XG
SMAJ14A	SMAJ14CA	14.0	15.60	17.20	1	23.2	17.2	1	BK	XK
SMAJ15A	SMAJ15CA	15.0	16.70	18.50	1	24.4	16.4	1	BM	XM
SMAJ16A	SMAJ16CA	16.0	17.80	19.70	1	26.0	15.3	1	BP	XP
SMAJ17A	SMAJ17CA	17.0	18.90	20.90	1	27.6	14.5	1	BR	XR
SMAJ18A	SMAJ18CA	18.0	20.00	22.10	1	29.2	13.7	1	BT	XT
SMAJ19A	SMAJ19CA	19.0	21.10	23.30	1	30.8	13.0	1	BU	XU
SMAJ20A	SMAJ20CA	20.0	22.20	24.50	1	32.4	12.3	1	BV	XV
SMAJ22A	SMAJ22CA	22.0	24.40	26.90	1	35.5	11.2	1	BX	XX
SMAJ24A	SMAJ24CA	24.0	26.70	29.50	1	38.9	10.3	1	BZ	XZ
SMAJ26A	SMAJ26CA	26.0	28.90	31.90	1	42.1	9.5	1	CE	YE
SMAJ28A	SMAJ28CA	28.0	31.10	34.40	1	45.4	8.8	1	CG	YG
SMAJ30A	SMAJ30CA	30.0	33.30	36.80	1	48.4	8.3	1	CK	YK
SMAJ33A	SMAJ33CA	33.0	36.70	40.60	1	53.3	7.5	1	CM	YM
SMAJ36A	SMAJ36CA	36.0	40.00	44.20	1	58.1	6.9	1	CP	YP
SMAJ40A	SMAJ40CA	40.0	44.40	49.10	1	64.5	6.2	1	CR	YR
SMAJ43A	SMAJ43CA	43.0	47.80	52.80	1	69.4	5.7	1	CT	YT
SMAJ45A	SMAJ45CA	45.0	50.00	55.30	1	72.7	5.5	1	CV	YV
SMAJ48A	SMAJ48CA	48.0	53.30	58.90	1	77.4	5.2	1	CX	YX
SMAJ51A	SMAJ51CA	51.0	56.70	62.70	1	82.4	4.9	1	CZ	YZ
SMAJ54A	SMAJ54CA	54.0	60.00	66.30	1	87.1	4.6	1	RE	ZE
SMAJ58A	SMAJ58CA	58.0	64.40	71.20	1	93.6	4.3	1	RG	ZG
SMAJ60A	SMAJ60CA	60.0	66.70	73.70	1	96.8	4.1	1	RK	ZK
SMAJ64A	SMAJ64CA	64.0	71.10	78.60	1	103.0	3.9	1	RM	ZM
SMAJ70A	SMAJ70CA	70.0	77.80	86.00	1	113.0	3.5	1	RP	ZP
SMAJ75A	SMAJ75CA	75.0	83.30	92.10	1	121.0	3.3	1	RR	ZR
SMAJ78A	SMAJ78CA	78.0	86.70	95.80	1	126.0	3.2	1	RT	ZT
SMAJ80A	SMAJ80CA	80.0	88.80	97.60	1	129.0	3.1	1	RB	ZB
SMAJ85A	SMAJ85CA	85.0	94.40	104.00	1	137.0	2.9	1	RV	ZV
SMAJ90A	SMAJ90CA	90.0	100.00	111.00	1	146.0	2.7	1	RX	ZX
SMAJ100A	SMAJ100CA	100.0	111.00	123.00	1	162.0	2.5	1	RZ	ZZ
SMAJ110A	SMAJ110CA	110.0	122.00	135.00	1	177.0	2.3	1	SE	VE
SMAJ120A	SMAJ120CA	120.0	133.00	147.00	1	193.0	2.1	1	SG	VG
SMAJ130A	SMAJ130CA	130.0	144.00	159.00	1	209.0	1.9	1	SK	VK
SMAJ140A	SMAJ140CA	140.0	155.00	171.00	1	226.8	1.8	1	SL	VL
SMAJ150A	SMAJ150CA	150.0	167.00	185.00	1	243.0	1.6	1	SM	VM
SMAJ160A	SMAJ160CA	160.0	178.00	197.00	1	259.0	1.5	1	SP	VP
SMAJ170A	SMAJ170CA	170.0	189.00	209.00	1	275.0	1.5	1	SR	VR
SMAJ180A	SMAJ180CA	180.0	201.00	222.00	1	292.0	1.4	1	ST	VT
SMAJ190A	SMAJ190CA	190.0	211.00	232.00	1	307.8	1.3	1	SU	VU
SMAJ200A	SMAJ200CA	200.0	224.00	247.00	1	324.0	1.2	1	SV	VV
SMAJ220A	SMAJ220CA	220.0	246.00	272.00	1	356.0	1.1	1	SX	VX
SMAJ250A	SMAJ250CA	250.0	279.00	309.00	1	405.0	1.0	1	SZ	VZ
SMAJ300A	SMAJ300CA	300.0	335.00	371.00	1	486.0	0.8	1	TE	UE
SMAJ350A	SMAJ350CA	350.0	391.00	432.00	1	567.0	0.7	1	TG	UG
SMAJ400A	SMAJ400CA	400.0	447.00	494.00	1	648.0	0.6	1	TK	UK
SMAJ440A	SMAJ440CA	440.0	492.00	543.00	1	713.0	0.6	1	TM	UM

For bi-directional type having V_{RWM} of 10 Volts and less, the I_R limit is double

Curve Characteristics

Fig. 1 - Peak Pulse Power Rating Curve

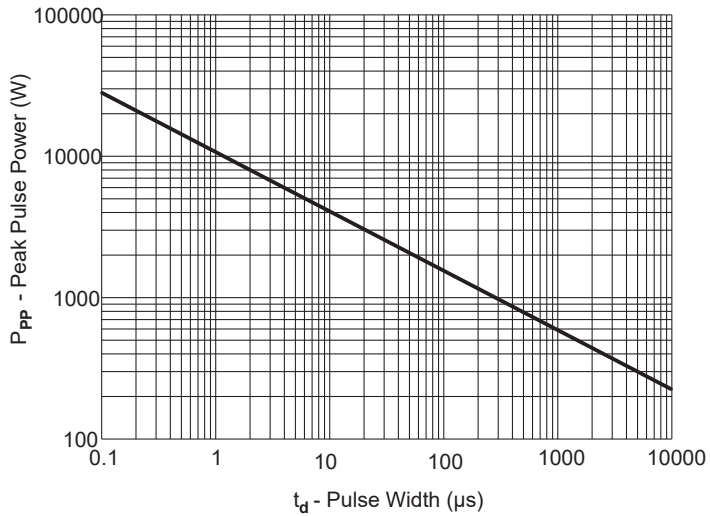


Fig. 2 - Typical Junction Capacitance

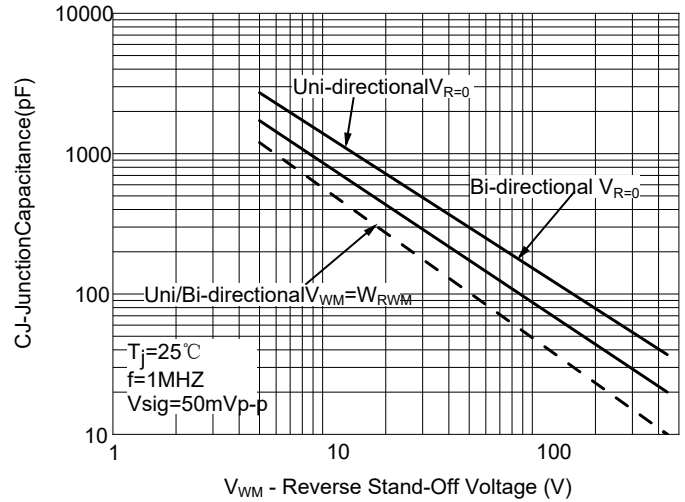


Fig. 3 - Pulse Waveform

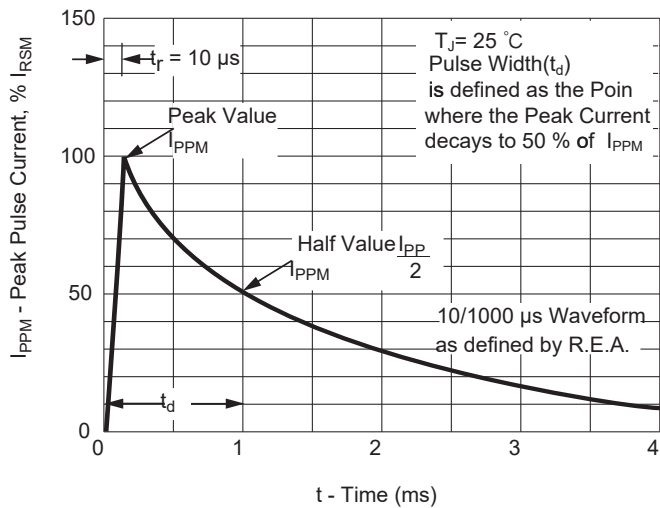


Fig. 4 - Pulse Derating Curve

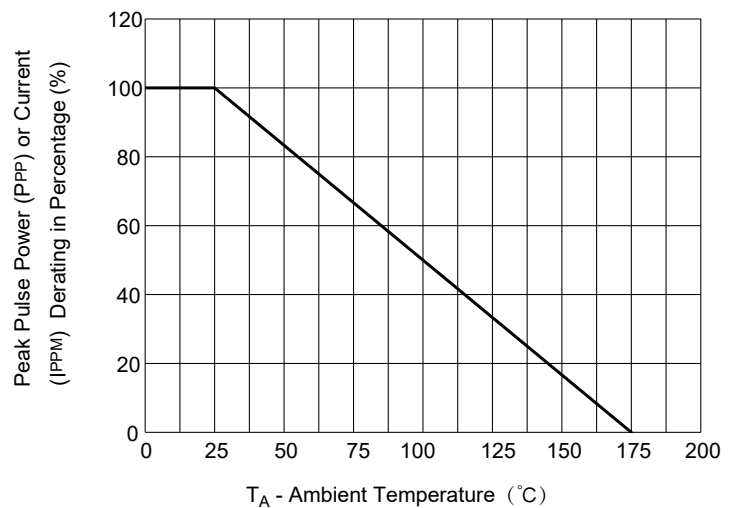
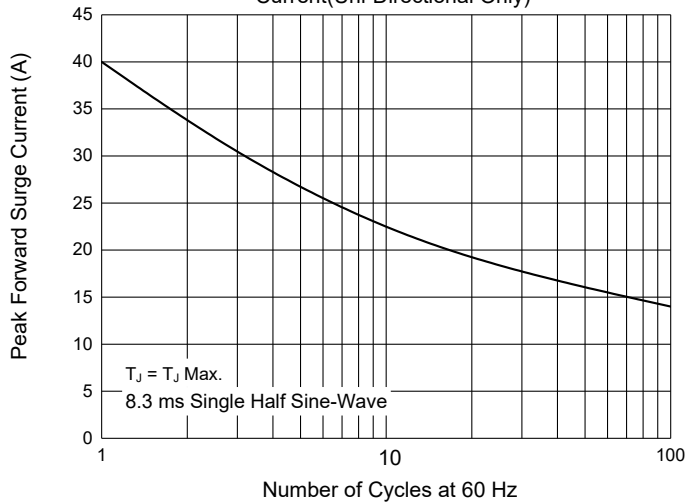


Fig. 5 - Maximum Non-Repetitive Peak Forward Surge Current(Uni-Directional Only)



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:5Kpcs/Reel

IMPORTANT NOTICE

Micro Commercial Components Corp. reserves the right to make changes without further notice to any product herein to make corrections, modifications , enhancements , improvements , or other changes . **Micro Commercial Components Corp.** does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights ,nor the rights of others . The user of products in such applications shall assume all risks of such use and will agree to hold **Micro Commercial Components Corp.** and all the companies whose products are represented on our website, harmless against all damages. **Micro Commercial Components Corp.** products are sold subject to the general terms and conditions of commercial sale, as published at <https://www.mccsemi.com/Home/TermsAndConditions>.

LIFE SUPPORT

MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation.

CUSTOMER AWARENESS

Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. **MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources.** MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.