



# THE DATASHEET OF SMCJ13A-TP



	<b>E480232</b>
---	----------------

**Features**

- For Surface Mount Application in Order to Optimize Board Space
- Built-in Strain Relief
- Glass Passivated Junction
- Plastic Package Has Underwrites Laboratory Flammability
- Temperature Coefficient, Typical Value is 0.1%
- Fast Response Time: Typical Less than 1ps from 0V to BV Min
- Typical I<sub>D</sub> Less than 1μA Above 10V
- High Temperature 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 Compliant. See Ordering Information)

**Mechanical Data**

- Polarity: Color Band Denotes Positive End( Cathode) Except Bi-directional Types(Note4)
- IEC-61000-4-2 ESD 15kV(Air), 8kV(Contact)

**Maximum Ratings**

- Operating Junction Temperature Range: -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Typical Thermal Resistance: 15°C/W Junction to Lead
- Typical Thermal Resistance: 75°C/W Junction to Ambient

**Electrical Characteristics @ 25°C Unless Otherwise Specified**

Peak Pulse Power Surge Current on 10/1000μs Waveform	I <sub>PPM</sub>	See the Table	Note 3
Peak Pulse Power Dissipation on 10/1000μs Waveform	P <sub>PPM</sub>	1500W	Note 3,4, Fig1
Power Dissipation on infinite heat sink	P <sub>D</sub>	6.5W	T <sub>L</sub> = 75°C.
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only	I <sub>FSM</sub>	200A	
Maximum instantaneous forward voltage at 100A for unidirectional only	V <sub>F</sub>	3.5V MAX 1.7 TYP /5V MAX 4 TYP	Note 6

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<sub>A</sub>=25 °C per Fig.4.
4. Mounted on 8.0mm<sup>2</sup>copper pads to each terminal.
5. Unidirectional and bidirectional available, for bidirectional devices add "C" suffix to the pn#SMCJ5.0CA
6. V<sub>F</sub><3.5V for devices of V<sub>BR</sub><200V and V<sub>F</sub><5.0V for devices of V<sub>BR</sub>>201V

Pin Configuration:



**1500 Watt TVS  
5.0 to 440 Volts**

**SMC (DO-214AB)  
(LEAD FRAME)**



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.079	0.103	2.00	2.62	
B	0.108	0.128	2.75	3.25	
C	0.002	0.008	0.051	0.203	
D	0.006	0.012	0.152	0.305	
E	0.030	0.060	0.76	1.52	
F	0.305	0.320	7.75	8.13	
G	0.260	0.280	6.60	7.11	
H	0.220	0.245	5.59	6.22	

**Suggested Solder Pad Layout**



Electrical Characteristics @ 25°C Unless Otherwise Specified

MCC Part Number		Reverse Stand-Off Voltage	Breakdown Voltage $V_{BR}(V)$		Test Current	Max. Clamping Voltage @ $I_{PP}$	Peak Pulse Current	Reverse Leakage Current@ $V_{WM}$	Marking Code	
Uni-Polar	Bi-Polar	$V_{WM}(V)$	Min	Max	$I_T(mA)$	$V_C(V)$	$I_{PP}(A)$	$I_D(\mu A)$	UNI	BI
SMCJ5.0A	SMCJ5.0CA	5	6.4	7.0	10	9.2	163.0	800	GDE	BDE
SMCJ6.0A	SMCJ6.0CA	6	6.7	7.4	10	10.3	145.7	800	GDG	BDG
SMCJ6.5A	SMCJ6.5CA	6.5	7.2	8.0	10	11.2	134.0	500	GDK	BDK
SMCJ7.0A	SMCJ7.0CA	7	7.8	8.6	10	12.0	125.0	200	GDM	BDM
SMCJ7.5A	SMCJ7.5CA	7.5	8.3	9.2	1	12.9	116.3	100	GDP	BDP
SMCJ8.0A	SMCJ8.0CA	8	8.9	9.8	1	13.6	110.3	50	GDR	BDR
SMCJ8.5A	SMCJ8.5CA	8.5	9.4	10.4	1	14.4	104.2	20	GDT	BDT
SMCJ9.0A	SMCJ9.0CA	9	10.0	11.1	1	15.4	97.4	10	GDV	BDV
SMCJ10A	SMCJ10CA	10	11.1	12.3	1	17.0	88.3	5	GDY	BDY
SMCJ11A	SMCJ11CA	11	12.2	13.5	1	18.2	82.5	1	GDZ	BDZ
SMCJ12A	SMCJ12CA	12	13.3	14.7	1	19.9	75.4	1	GEE	BEE
SMCJ13A	SMCJ13CA	13	14.4	15.9	1	21.5	69.8	1	GEG	BEG
SMCJ14A	SMCJ14CA	14	15.6	17.2	1	23.2	64.7	1	GEK	BEK
SMCJ15A	SMCJ15CA	15	16.7	18.5	1	24.4	61.5	1	GEM	BEM
SMCJ16A	SMCJ16CA	16	17.8	19.7	1	26.0	57.7	1	GEP	BEP
SMCJ17A	SMCJ17CA	17	18.9	20.9	1	27.6	54.4	1	GER	BER
SMCJ18A	SMCJ18CA	18	20.0	22.1	1	29.2	51.4	1	GET	BET
SMCJ20A	SMCJ20CA	20	22.2	24.5	1	32.4	46.3	1	GEV	BEV
SMCJ22A	SMCJ22CA	22	24.4	26.9	1	35.5	42.3	1	GEX	BEX
SMCJ24A	SMCJ24CA	24	26.7	29.5	1	38.9	38.6	1	GEZ	BEZ
SMCJ26A	SMCJ26CA	26	28.9	31.9	1	42.1	35.7	1	GFE	BFE
SMCJ28A	SMCJ28CA	28	31.1	34.4	1	45.4	33.1	1	GFG	BFG
SMCJ30A	SMCJ30CA	30	33.3	36.8	1	48.4	31.0	1	GFK	BFK
SMCJ33A	SMCJ33CA	33	36.7	40.6	1	53.3	28.2	1	GFM	BFM
SMCJ36A	SMCJ36CA	36	40.0	44.2	1	58.1	25.9	1	GFP	BFP
SMCJ40A	SMCJ40CA	40	44.4	49.1	1	64.5	23.3	1	GFR	BFR
SMCJ43A	SMCJ43CA	43	47.8	52.8	1	69.4	21.7	1	GFT	BFT
SMCJ45A	SMCJ45CA	45	50.0	55.3	1	72.7	20.6	1	GFV	BFV
SMCJ48A	SMCJ48CA	48	53.3	58.9	1	77.4	19.4	1	GFX	BFX
SMCJ51A	SMCJ51CA	51	56.7	62.7	1	82.4	18.2	1	GFZ	BFZ
SMCJ54A	SMCJ54CA	54	60.0	66.3	1	87.1	17.3	1	GGE	BGE
SMCJ58A	SMCJ58CA	58	64.4	71.2	1	93.6	16.1	1	GGG	BGG
SMCJ60A	SMCJ60CA	60	66.7	73.7	1	96.8	15.5	1	GGK	BGK
SMCJ64A	SMCJ64CA	64	71.1	78.6	1	103.0	14.6	1	GGM	BGM
SMCJ70A	SMCJ70CA	70	77.8	86.0	1	113.0	13.3	1	GGP	BGP
SMCJ75A	SMCJ75CA	75	83.3	92.1	1	121.0	12.4	1	GGR	BGR
SMCJ78A	SMCJ78CA	78	86.7	95.8	1	126.0	11.9	1	GGT	BGT
SMCJ85A	SMCJ85CA	85	94.4	104.0	1	137.0	11.0	1	GGV	BGV
SMCJ90A	SMCJ90CA	90	100.0	111.0	1	146.0	10.3	1	GGX	BGX
SMCJ100A	SMCJ100CA	100	111.0	123.0	1	162.0	9.3	1	GGZ	BGZ
SMCJ110A	SMCJ110CA	110	122.0	135.0	1	177	8.5	1	GHE	BHE
SMCJ120A	SMCJ120CA	120	133.0	147.0	1	193	7.8	1	GHG	BHG
SMCJ130A	SMCJ130CA	130	144.0	159.0	1	209	7.2	1	GHK	BHK
SMCJ150A	SMCJ150CA	150	167.0	185.0	1	243	6.2	1	GHM	BHM
SMCJ160A	SMCJ160CA	160	178.0	197.0	1	259	5.8	1	GHP	BHP
SMCJ170A	SMCJ170CA	170	189.0	209.0	1	275	5.5	1	GHR	BHR
SMCJ180A	SMCJ180CA	180	201.0	222.0	1	292	5.1	1	GHT	BHT
SMCJ200A	SMCJ200CA	200	224.0	247.0	1	324	4.6	1	GHV	BHV

For bi-directional type having  $V_{WM}$  of 10volts and less, the  $I_R$  limit is double. For parts without A, the  $V_{BR}$  is  $\pm 10\%$

**Electrical Characteristics @ 25°C Unless Otherwise Specified**

MCC Part Number		Reverse Stand-Off Voltage	Breakdown Voltage $V_{BR}(V)$		Test Current	Max. Clamping Voltage @ $I_{PP}$	Peak Pulse Current	Reverse Leakage Current @ $V_{WM}$	Marking Code	
SMCJ220A	SMCJ220CA	220	246.0	272.0	1	356	4.2	1	GHX	BHX
SMCJ250A	SMCJ250CA	250	279.0	309.0	1	405	3.7	1	GHZ	BHZ
SMCJ300A	SMCJ300CA	300	335.0	371.0	1	486	3.1	1	GJE	BJE
SMCJ350A	SMCJ350CA	350	391.0	432.0	1	567	2.6	1	GJG	BJG
SMCJ400A	SMCJ400CA	400	447.0	494.0	1	648	2.3	1	GJK	BJK
SMCJ440A	SMCJ440CA	440	492.0	543.0	1	713	2.1	1	GJM	BJM

For bi-directional type having  $V_{WM}$  of 10volts and less, the  $I_R$  limit is double. For parts without A, the  $V_{BR}$  is  $\pm 10\%$

**Curve Characteristics**

Fig. 1 - Peak Pulse Power Rating Curve

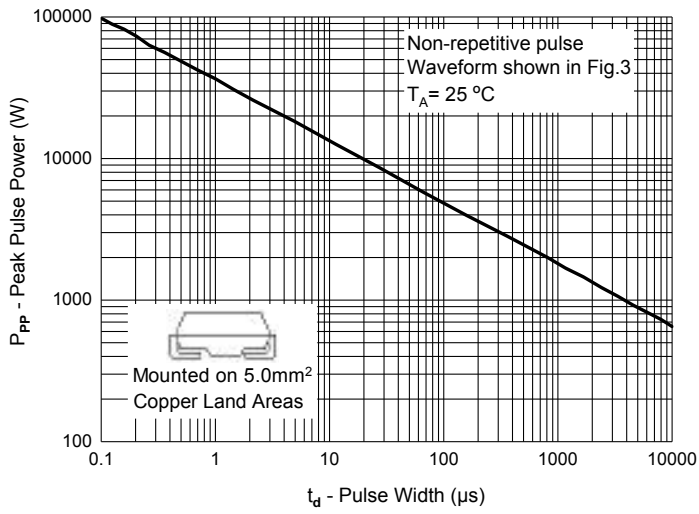


Fig. 2 - Typical Junction Capacitance



Fig. 3 - Pulse Waveform

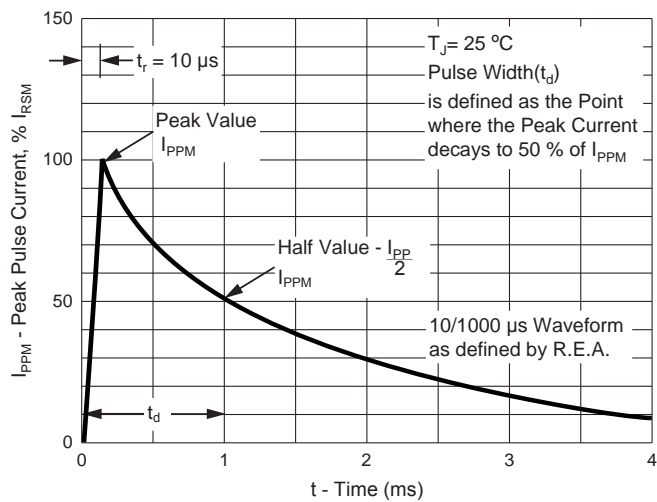


Fig. 4 - Pulse Derating Curve



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:3Kpcs/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.

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- ⊖ [View SMCJ13A-TP](#) on WIN SOURCE
- ⊖ [Micro Commercial Co](#) Information

## Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management