



DO-214AB PACKAGE

APPLICATIONS

- Power Supply
- AC/DC Applications
- Telecom

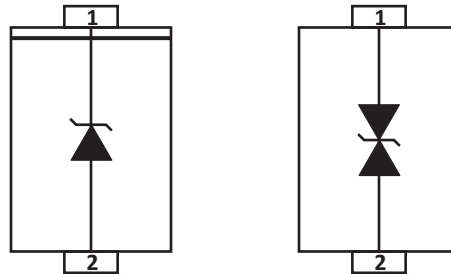
FEATURES

- RTCA DO-160G COMPLIANT PRODUCT
- UL Registered
- Compatible with IEC 61000-4-2 (ESD): Level 4 - Air 15kV, Contact 8kV
- Compatible with IEC 61000-4-4 (EFT): 40A, 5/50ns
- Compatible with IEC 61000-4-5 (Surge): 8/20 μ s Waveform
- Glass Passivated Chip
- 1500 Watts Peak Pulse Power per Line ($t_p = 10/1000\mu$ s)
- Low Leakage Current
- Bidirectional and Unidirectional Configurations
- Excellent Clamping Capability
- Very Fast Response Time
- Available in Multiple Voltages
- RoHS Compliant
- REACH Compliant

MECHANICAL CHARACTERISTICS

- Molded JEDEC DO-214AB Package
- Approximate Weight: 0.248 grams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:
Pure-Tin - Sn, 100: 260-270°C
- 16mm Tape and Reel Per EIA Standard 481
- Terminal: Solderable per MIL-STD-750, Method 2026
- Flammability Rating UL 94V-0

PIN CONFIGURATIONS



TYPICAL DEVICE CHARACTERISTICS

RTCA DO-160G COMPLIANT PRODUCT

MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

PARAMETER	SYMBOL	VALUE	UNITS
Operating Temperature	T_J	-55 to 150	°C
Storage Temperature	T_{STG}	-55 to 150	°C
Peak Pulse Power (tp = 10/1000µs) - See Figure 1 and Note 2	P_{PP}	1500	Watts
Power Dissipation on Infinite Heatsink at $T_L = 75^\circ\text{C}$	P_D	6.5	Watts
Peak Forward Surge Current, 8.3ms single half sinewave - Unidirectional Only (Note 2)	I_{FSM}	200	Amps
Maximum Instantaneous Forward Voltage at 100A - Unidirectional Only (Note 3)	V_F	3.5/5.0	V

NOTE

1. Non-repetitive current pulse per Figure 2 and derated above $T_A = 25^\circ\text{C}$ per Figure 2.
2. Measured on 8.3ms single half sinewave or equivalent square wave, duty cycle = 4 pulses per minute maximum.
3. $V_F < 3.5\text{V}$.

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Notes 1-2)	DEVICE MARKING		REVERSE STAND-OFF VOLTAGE V_{RWM} VOLTS	BREAKDOWN VOLTAGE $V_{(BR)} @ I_T$ VOLTS		TEST CURRENT @ I_T mA	MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ I_P V_C VOLTS	MAXIMUM REVERSE SURGE CURRENT @ I_{PP} AMPS	MAXIMUM REVERSE LEAKAGE CURRENT @ V_{RWM} I_R µA
	UNI	BI		MIN	MAX				
SMCJ5.0A	GDE	BDE	5.0	6.40	7.00	10	9.2	163	800
SMCJ6.0A	GDG	BDG	6.0	6.67	7.37	10	10.3	146	800
SMCJ6.5A	GDK	BDK	6.5	7.22	7.98	10	11.2	134	500
SMCJ7.0A	GDM	BDM	7.0	7.78	8.60	10	12.0	125	200
SMCJ7.5A	GDP	BDP	7.5	8.33	9.21	1	12.9	116	100
SMCJ8.0A	GDR	BDR	8.0	8.89	9.83	1	13.6	110	50
SMCJ8.5A	GDT	BDT	8.5	9.44	10.40	1	14.4	104	20
SMCJ9.0A	GDV	BDV	9.0	10.00	11.10	1	15.4	97.4	10
SMCJ10A	GDX	BDX	10.0	11.10	12.30	1	17.0	88.2	5
SMCJ11A	GDZ	BDZ	11.0	12.20	13.50	1	18.2	82.4	1
SMCJ12A	GEE	BEE	12.0	13.30	14.70	1	19.9	75.4	1
SMCJ13A	GEG	BEG	13.0	14.40	15.90	1	21.5	69.8	1
SMCJ14A	GEK	BEK	14.0	15.60	17.20	1	23.2	64.7	1
SMCJ15A	GEM	BEM	15.0	16.70	18.50	1	24.4	61.5	1
SMCJ16A	GEP	BEP	16.0	17.80	19.70	1	26.0	57.7	1
SMCJ17A	GER	BER	17.0	18.90	20.90	1	27.6	54.4	1
SMCJ18A	GET	BET	18.0	20.00	22.10	1	29.2	51.4	1
SMCJ19A	GEB	BEB	19.0	21.10	23.30	1	30.8	48.7	1
SMCJ20A	GEV	BEV	20.0	22.20	24.50	1	32.4	46.3	1
SMCJ22A	GEX	BEX	22.0	24.40	26.90	1	35.5	42.3	1
SMCJ24A	GEZ	BEZ	24.0	26.70	29.50	1	38.9	38.6	1

TYPICAL DEVICE CHARACTERISTICS

RTCA DO-160G COMPLIANT PRODUCT

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Notes 1-2)	DEVICE MARKING		REVERSE STAND-OFF VOLTAGE V_{RWM} VOLTS	BREAKDOWN VOLTAGE $V_{(BR)} @ I_T$ VOLTS		TEST CURRENT @ I_T mA	MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ I_p V_c VOLTS	MAXIMUM REVERSE SURGE CURRENT @ I_{PP} AMPS	MAXIMUM REVERSE LEAKAGE CURRENT @ V_{RWM} I_R μA
	UNI	BI		MIN	MAX				
	SMCJ26A	GFE	BFE	26.0	28.90	31.90	1	42.1	35.6
SMCJ28A	GFG	BFG	28.0	31.10	34.40	1	45.4	33.0	1
SMCJ30A	GFK	BFK	30.0	33.30	36.80	1	48.4	31.0	1
SMCJ33A	GFM	BFM	33.0	36.70	40.60	1	53.3	28.1	1
SMCJ36A	GFP	BFP	36.0	40.00	44.20	1	58.1	25.8	1
SMCJ40A	GFR	BFR	40.0	44.40	49.10	1	64.5	23.3	1
SMCJ43A	GFT	BFT	43.0	47.80	52.80	1	69.4	21.6	1
SMCJ45A	GFV	BFV	45.0	50.0	55.30	1	72.7	20.6	1
SMCJ48A	GFX	BFX	48.0	53.30	58.90	1	77.4	19.4	1
SMCJ51A	GFZ	BFZ	51.0	56.70	62.70	1	82.4	18.2	1
SMCJ54A	GGE	BGE	54.0	60.00	66.30	1	87.1	17.2	1
SMCJ58A	GGG	BGG	58.0	64.40	71.20	1	93.6	16.0	1
SMCJ60A	GGK	BGK	60.0	66.70	73.70	1	96.8	15.5	1
SMCJ64A	GGM	BGM	64.0	71.10	78.60	1	103.0	14.6	1
SMCJ70A	GGP	BGP	70.0	77.80	86.00	1	113.0	13.3	1
SMCJ75A	GGR	BGR	75.0	83.30	92.10	1	121.0	12.4	1
SMCJ78A	GGT	BGT	78.0	86.70	95.80	1	126.0	11.9	1
SMCJ80A	GGB	BGB	80.0	88.80	97.60	1	129.6	11.6	1
SMCJ85A	GGV	BGV	85.0	94.40	104.00	1	137.0	11.0	1
SMCJ90A	GGX	BGX	90.0	100.00	111.00	1	146.0	10.3	1
SMCJ100A	GGZ	BGZ	100.0	111.00	123.00	1	162.0	9.3	1
SMCJ110A	GHE	BHE	110.0	122.00	135.00	1	177.0	8.5	1
SMCJ120A	GHG	BHG	120.0	133.00	147.00	1	193.0	7.8	1
SMCJ130A	GHK	BHK	130.0	144.00	159.00	1	209.0	7.2	1
SMCJ140A	GHB	BHB	140.0	155.00	171.00	1	226.8	6.6	1
SMCJ150A	GHM	BHM	150.0	167.00	185.00	1	243.0	6.2	1
SMCJ160A	GHP	BHP	160.0	178.00	197.00	1	259.0	5.8	1
SMCJ170A	GHR	BHR	170.0	189.00	209.00	1	275.0	5.5	1
SMCJ180A	GHT	BHT	180.0	200.00	220.00	1	291.6	5.1	1
SMCJ190A	GHV	BHV	190.0	211.00	232.00	1	307.8	4.9	1
SMCJ200A	GHW	BHW	200.0	224.00	247.00	1	324.0	4.6	1
SMCJ220A	GHX	BHX	220.0	246.00	272.00	1	356.0	4.2	1
SMCJ250A	GHZ	BHZ	250.0	279.00	309.00	1	405.0	3.7	1

TYPICAL DEVICE CHARACTERISTICS

RTCA DO-160G COMPLIANT PRODUCT

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Notes 1-2)	DEVICE MARKING		REVERSE STAND-OFF VOLTAGE V_{RWM} VOLTS	BREAKDOWN VOLTAGE $V_{(BR)} @ I_T$ VOLTS		TEST CURRENT @ I_T mA	MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ I_p V_c VOLTS	MAXIMUM REVERSE SURGE CURRENT @ I_{PP} AMPS	MAXIMUM REVERSE LEAKAGE CURRENT @ V_{RWM} I_R μA
	UNI	BI		MIN	MAX				
SMCJ300A	GJE	BJE	300.0	335.00	371.00	1	486.0	3.1	1
SMCJ350A	GJG	BJG	350.0	391.00	432.00	1	567.0	2.6	1
SMCJ376A	GJH	BJH	376.00	418.00	462.00	1	602.0	2.5	1
SMCJ400A	GJK	BJK	400.0	447.00	494.00	1	648.0	2.5	1
SMCJ408A	GJL	BJL	408.0	456.0	504.00	1	658.0	2.15	1
SMCJ440A	GJM	BJM	440.0	492.00	543.00	1	713.0	2.1	1

NOTE

- Suffix 'A' denotes 5% tolerance.
- Add suffix 'CA' after part number to specify a bidirectional device.

FIGURE 1

PEAK PULSE POWER VS PULSE TIME

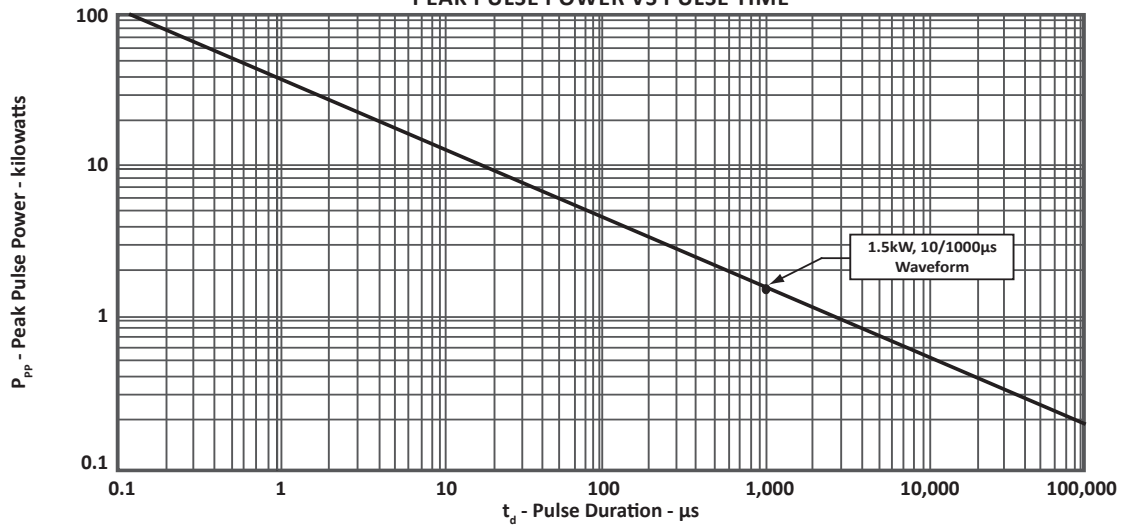


FIGURE 2
PULSE WAVEFORM

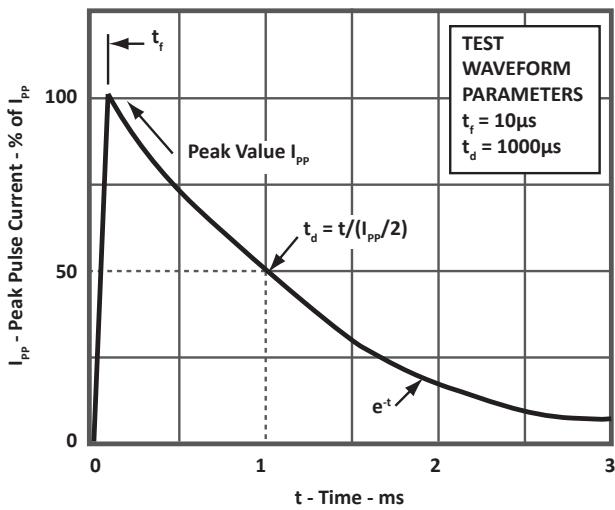


FIGURE 3
POWER DERATING CURVE

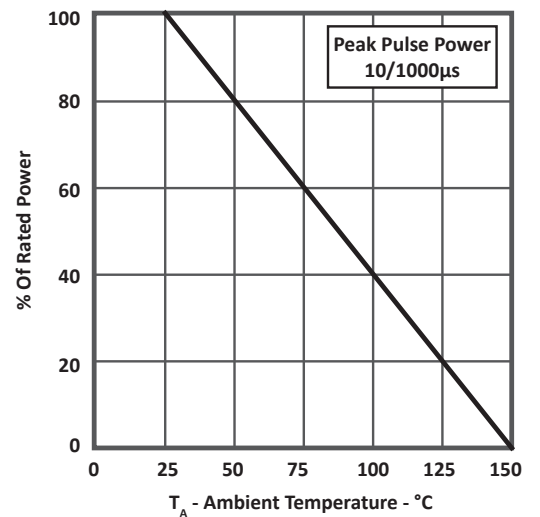


FIGURE 4
TYPICAL JUNCTION CAPACITANCE

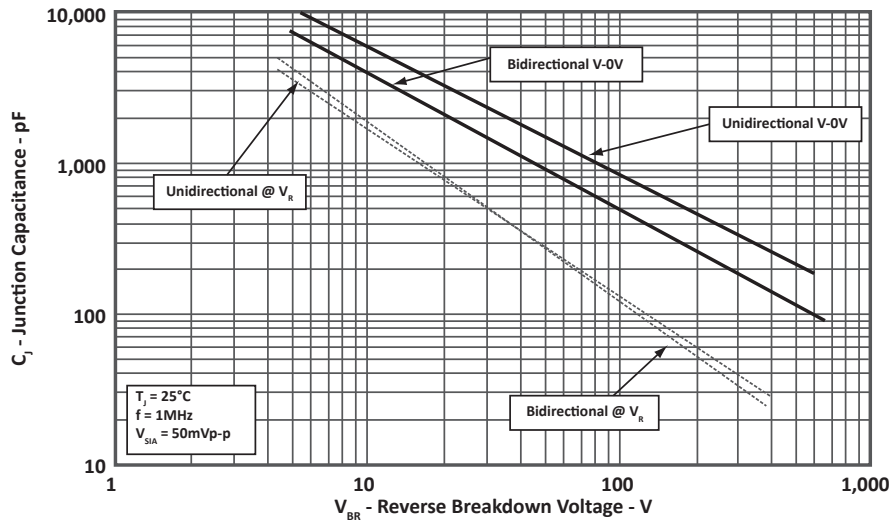


FIGURE 5
MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

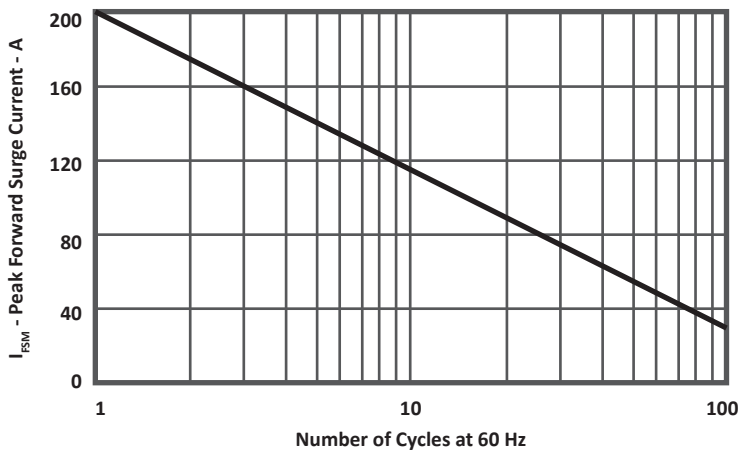
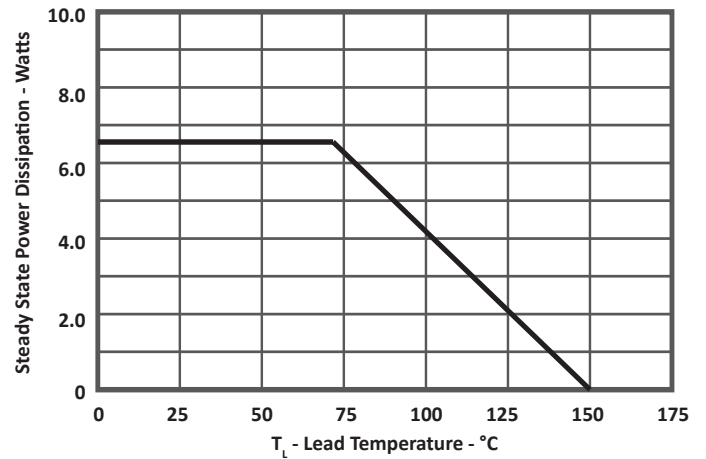


FIGURE 6
STEADY STATE POWER DERATING CURVE



DO-214AB PACKAGE INFORMATION

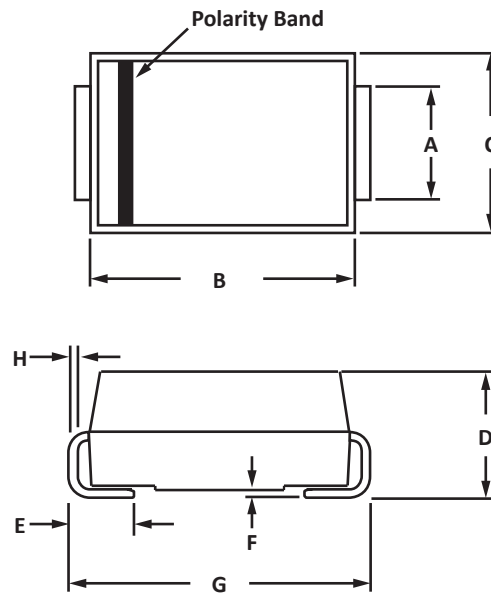
RTCA DO-160G COMPLIANT PRODUCT

OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.75	3.25	0.108	0.128
B	6.60	7.40	0.260	0.291
C	5.59	6.25	0.220	0.246
D	2.06	2.62	0.079	0.103
E	0.76	1.52	0.030	0.060
F	-	0.203	-	0.008
G	7.70	8.2	0.303	0.323
H	0.15	0.31	0.006	0.012

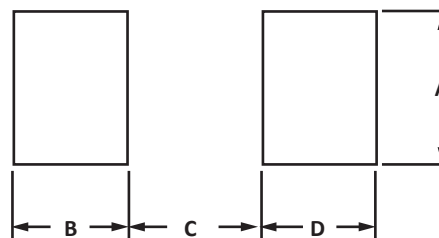
NOTES

- Dimensions are exclusive of mold flash and metal burrs.



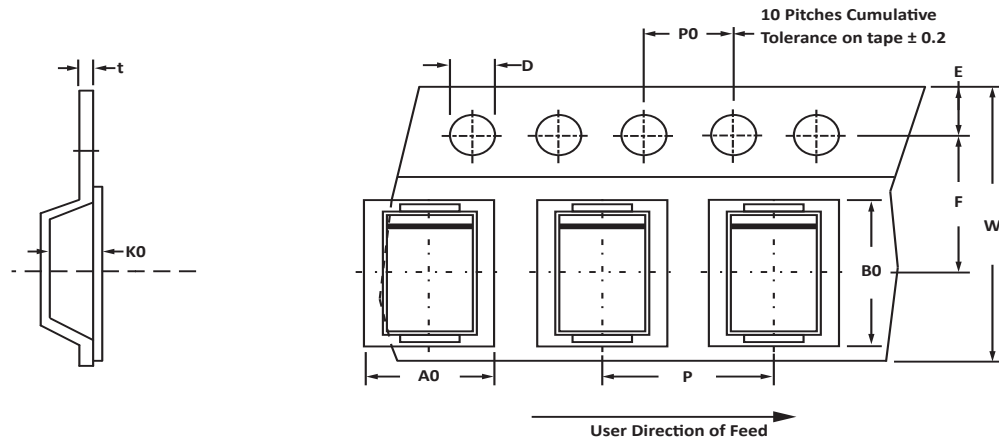
PAD LAYOUT DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	3.30	-	0.129	-
B	2.40	-	0.094	-
C	-	4.20	-	0.165
D	2.40	-	0.094	-



TAPE AND REEL

RTCA DO-160G COMPLIANT PRODUCT



SPECIFICATIONS

REEL DIA.	TAPE WIDTH	A0	B0	K0	D	E	F	W	P0	P	tmax
330mm (13")	16mm	6.05 ± 0.10	8.31 ± 0.10	2.54 ± 0.10	1.55 ± 0.05	1.75 ± 0.10	7.5 ± 0.10	16.00 ± 0.30	4.00 ± 0.10	8.00 ± 0.10	0.4

NOTES

- Dimensions are in millimeters.
- Surface mount product is taped and reeled in accordance with EIA-481.
- Marking on Part - marking code (see page 2), date code, logo and cathode defined by polarity band.

ORDERING INFORMATION

BASE PART NUMBER (Voltage = xx)	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
SMCJxxA	N/A	-T13	3,000	13"	N/A
SMCJxxCA	N/A	-T13	3,000	13"	N/A

This device is only available in a Lead-Free configuration.

COMPANY INFORMATION**RTCA DO-160G COMPLIANT PRODUCT****COMPANY PROFILE**

In business more than 25 years, ProTek Devices™ is a privately held semiconductor company. The company offers a product line of overvoltage protection and overcurrent protection components. These include transient voltage suppressor array (TVS arrays) avalanche breakdown diode, steering diode TVS array and electronics SMD chip fuses. These components deliver circuit protection in electronic systems from numerous overvoltage and overcurrent events. They include lightning; electrostatic discharge (ESD); nuclear electromagnetic pulses (NEMP); inductive switching; and electromagnetic interference (EMI) / radio frequency interference (RFI). ProTek Devices also offers LED wafer die for ESD protection and related high frequency products. ProTek Devices is ISO 9001 certified company.

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