



DO-214AA PACKAGE

### APPLICATIONS

- Power Supply
- AC/DC Applications
- Telecom

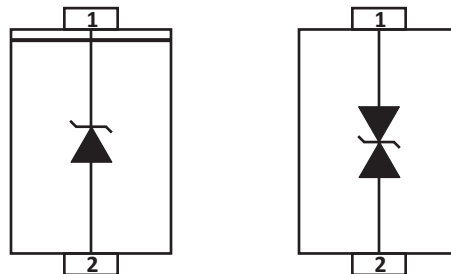
### FEATURES

- RTCA DO-160G COMPLIANT PRODUCT
- UL File Recognition #E208219
- 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 $\mu$ s Waveform
- Glass Passivated Chip
- 1000 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-214AA Package
- Approximate Weight: 0.103 grams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:  
Pure-Tin - Sn, 100: 260-270°C
- 12mm 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 125	°C
Storage Temperature	$T_{STG}$	-55 to 150	°C
Peak Pulse Power (tp = 10/1000µs) - See Figure 1 and Note 1	$P_{PP}$	1000	Watts
Power Dissipation on Infinite Heatsink at $T_L = 75^\circ\text{C}$	$P_D$	5.0	Watts
Peak Forward Surge Current, 8.3ms single half sinewave - Unidirectional Only (Note 2)	$I_{FSM}$	100	Amps
Maximum Instantaneous Forward Voltage at 50A - Unidirectional Only (Note 3)	$V_F$	5.0	V

## NOTE

1. Non-repetitive current pulse per Figure 2 and derated above  $T_A = 25^\circ\text{C}$  per Figure 3.
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				
1.0SMBJ5.0A	A5	C5	5.0	6.40	7.00	10	9.2	108.7	200
1.0SMBJ6.0A	A6	C6	6.0	6.67	7.37	10	10.3	97.1	200
1.0SMBJ6.5A	A6V	C6V	6.5	7.22	7.98	10	11.2	89.3	100
1.0SMBJ7.0A	A7	C7	7.0	7.78	8.60	10	12.0	83.4	80
1.0SMBJ7.5A	A7V	C7C	7.5	8.33	9.21	1	12.9	77.6	50
1.0SMBJ8.0A	A8	C8	8.0	8.89	9.83	1	13.6	73.6	20
1.0SMBJ8.5A	A8V	C8V	8.5	9.44	10.40	1	14.4	69.5	10
1.0SMBJ9.0A	A9	C9	9.0	10.00	11.10	1	15.4	65.0	5
1.0SMBJ10A	A10	C10	10.0	11.10	12.30	1	17.0	58.9	2
1.0SMBJ11A	A11	C11	11.0	12.20	13.50	1	18.2	55.0	1
1.0SMBJ12A	A12	C12	12.0	13.30	14.70	1	19.9	50.3	1
1.0SMBJ13A	A13	C13	13.0	14.40	15.90	1	21.5	46.6	1
1.0SMBJ14A	A14	C14	14.0	15.60	17.20	1	23.2	43.1	1
1.0SMBJ15A	A15	C15	15.0	16.70	18.50	1	24.4	41.0	1
1.0SMBJ16A	A16	C16	16.0	17.80	19.70	1	26.0	38.5	1
1.0SMBJ17A	A17	C17	17.0	18.90	20.90	1	27.6	36.3	1
1.0SMBJ18A	A18	C18	18.0	20.00	22.10	1	29.2	34.3	1
1.0SMBJ20A	A20	C20	20.0	22.20	24.50	1	32.4	30.9	1
1.0SMBJ22A	A22	C22	22.0	24.40	26.90	1	35.5	28.2	1
1.0SMBJ24A	A24	C24	24.0	26.70	29.50	1	38.9	25.7	1
1.0SMBJ26A	A26	C26	26.0	28.90	31.90	1	42.1	23.8	1

## TYPICAL DEVICE CHARACTERISTICS

## RTCA DO-160G COMPLIANT PRODUCT

## ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

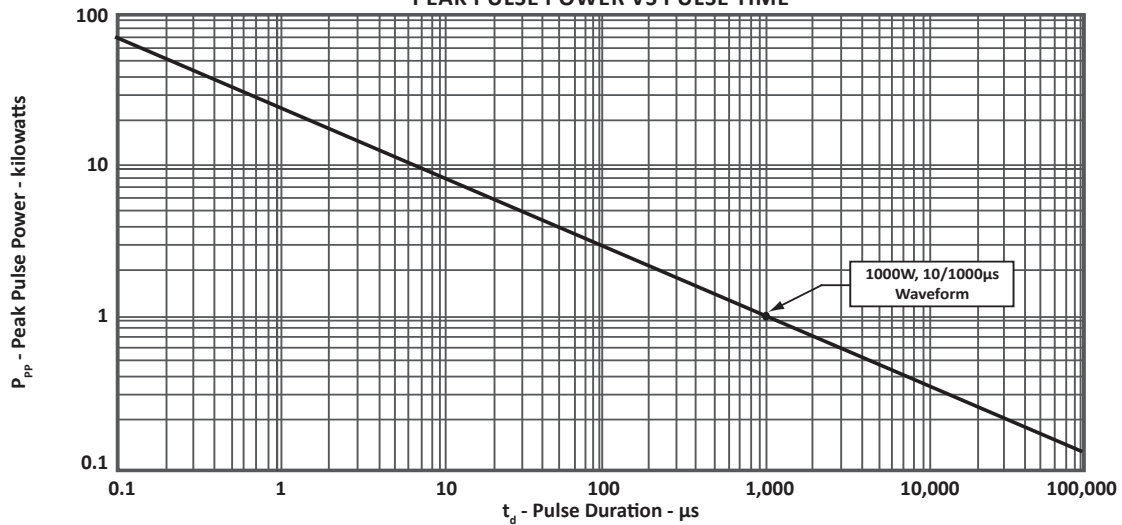
PART NUMBER (Notes 1-2)	DEVICE MARKING		REVERSE STAND-OFF VOLTAGE  $V_{RWM}$ VOLTS	BREAKDOWN VOLTAGE  $V_{(BR)} @ I_T$ VOLTS		TEST CURRENT  @ $I_T$ mA	MAXIMUM CLAMPING VOLTAGE (Fig. 2)  @ $I_p$ $V_c$ VOLTS	MAXIMUM REVERSE SURGE CURRENT  @ $I_{PP}$ AMPS	MAXIMUM REVERSE LEAKAGE CURRENT  @ $V_{RWM}$ $I_R$ $\mu A$
	UNI	BI		MIN	MAX				
1.0SMBJ28A	A28	C28	28.0	31.10	34.40	1	45.4	22.1	1
1.0SMBJ30A	A30	C30	30.0	33.30	36.80	1	48.4	20.7	1
1.0SMBJ33A	A33	C33	33.0	36.70	40.60	1	53.3	18.8	1
1.0SMBJ36A	A36	C36	36.0	40.00	44.20	1	58.1	17.3	1
1.0SMBJ40A	A40	C40	40.0	44.40	49.10	1	64.5	15.5	1
1.0SMBJ43A	A43	C43	43.0	47.80	52.80	1	69.4	14.4	1
1.0SMBJ45A	A45	C45	45.0	50.00	55.30	1	72.7	13.8	1
1.0SMBJ48A	A48	C48	48.0	53.30	58.90	1	77.4	13.0	1
1.0SMBJ51A	A51	C51	51.0	56.70	62.70	1	82.4	12.2	1
1.0SMBJ54A	A54	C54	54.0	60.00	66.30	1	87.1	11.5	1
1.0SMBJ58A	A58	C58	58.0	64.40	71.20	1	93.6	10.7	1
1.0SMBJ60A	A60	C60	60.0	66.70	73.70	1	96.8	10.4	1
1.0SMBJ64A	A64	C64	64.0	71.10	78.60	1	103.0	9.7	1
1.0SMBJ70A	A70	C70	70.0	77.80	86.00	1	113.0	8.9	1
1.0SMBJ75A	A75	C75	75.0	83.30	92.10	1	121.0	8.3	1
1.0SMBJ78A	A78	C78	78.0	86.70	95.80	1	126.0	8.0	1
1.0SMBJ85A	A85	C79	85.0	94.40	104.0	1	137.0	7.3	1
1.0SMBJ90A	A90	C90	90.0	100.0	111.0	1	146.0	6.9	1
1.0SMBJ100A	A100	C100	100.0	111.0	123.0	1	162.0	6.2	1
1.0SMBJ110A	A110	C110	110.0	122.0	135.0	1	177.0	5.7	1
1.0SMBJ120A	A120	C120	120.0	133.0	147.0	1	193.0	5.2	1
1.0SMBJ130A	A130	C130	130.0	144.0	159.0	1	209.0	4.8	1
1.0SMBJ150A	A150	C150	150.0	167.0	185.0	1	243.0	4.2	1
1.0SMBJ160A	A160	C160	160.0	178.0	197.0	1	259.0	3.9	1
1.0SMBJ170A	A170	C170	170.0	189.0	209.0	1	275.0	3.7	1
1.0SMBJ180A	A180	C180	180.0	201.0	220.0	1	292.0	3.5	1
1.0SMBJ190A	A190	C190	190.0	211.0	234.0	1	307.0	3.3	1
1.0SMBJ200A	A200	C200	200.0	224.0	247.0	1	324.0	3.1	1

## NOTES

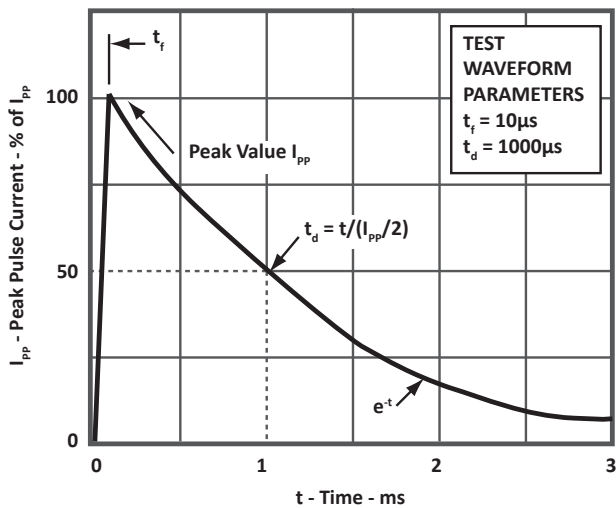
1. Add suffix 'C' or 'CA' after part number to specify a bidirectional device.
2. For bidirectional devices having a  $V_{RWM}$  of 10 Volts and under, the  $I_R$  limit is double.

**FIGURE 1**

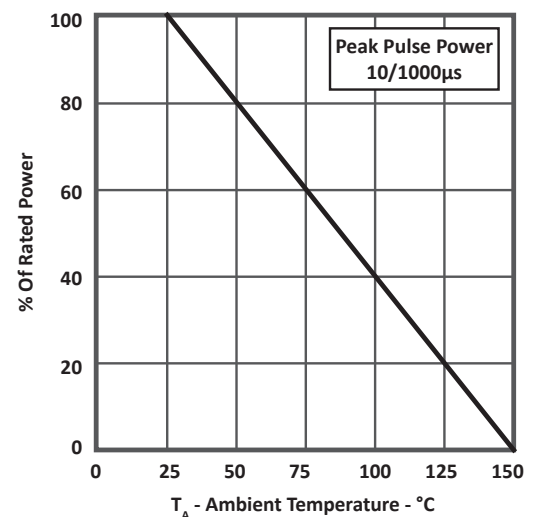
**PEAK PULSE POWER VS PULSE TIME**



**FIGURE 2**  
**PULSE WAVEFORM**



**FIGURE 3**  
**POWER DERATING CURVE**



## DO-214AA PACKAGE INFORMATION

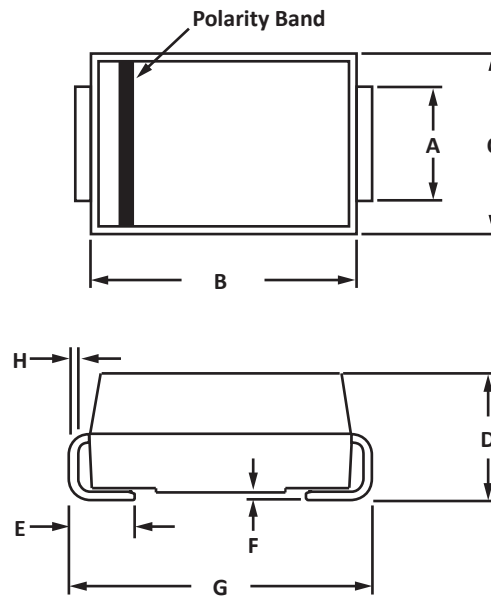
## RTCA DO-160G COMPLIANT PRODUCT

## OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.96	2.20	0.077	0.087
B	4.35	4.85	0.171	0.191
C	3.30	3.94	0.130	0.155
D	2.13	2.44	0.084	0.096
E	0.75	1.52	0.030	0.060
F	0.02	0.20	0.001	0.008
G	5.10	5.50	0.201	0.216
H	0.15	0.30	0.006	0.012

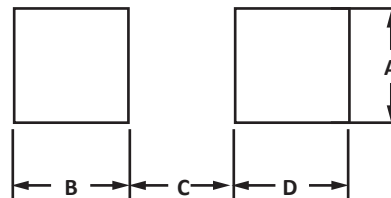
## NOTES

1. Dimensions are exclusive of mold flash and metal burrs.



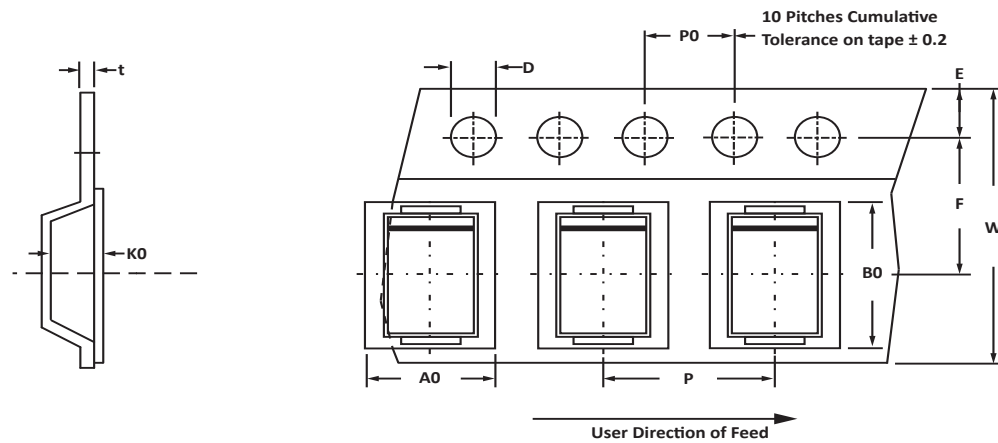
## PAD LAYOUT DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.03	-	0.080	-
B	1.91	-	0.075	-
C	-	2.54	-	1.00
D	1.91	-	0.075	-



## 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")	12mm	3.67 ± 0.10	5.69 ± 0.10	2.67 ± 0.10	1.55 ± 0.10	1.75 ± 0.10	5.5 ± 0.05	12.00 ± 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.
- Suffix - T13 = 13" Reel - 3,000 pieces and T500 = 7" Reel - 500 pieces per 16mm tape.
- 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
1.0SMBJxxA	N/A	-T13	3,000	13"	N/A
1.0SMBJxxCA	N/A	-T13	3,000	13"	N/A
1.0SMBJxxA	N/A	-T500	500	7"	N/A
1.0SMBJxxCA	N/A	-T500	500	7"	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 20 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.

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