



Features

- ◆ Bi-directional crowbar transient voltage protection
- ◆ High surge capability
- ◆ High off-state impedance
- ◆ Low leakage current
- ◆ Low on-state voltage
- ◆ Short-circuit failure mode



DO-214AA(SMB)

Main Application

PulseTake's thyristor surge protector devices are designed to help protect sensitive telecommunication equipment from the hazards caused by lightning, power contact, and power induction. These devices enable equipment to comply with various regulatory requirements including GR 1089, ITU K.20, K.21 and K.45, IEC 60950, UL 60950, and TIA-968-A (formerly known as FCC Part 68).

Typical application including:

- Central office switching equipment. Analog and digital linecards (xDSL, T1/E1, ISDN.....)
- Customer Premises Equipment (CPE) such as phones, fax machines, modems, POS terminals, PBX systems and caller ID adjunct boxes.
- Primary protection modules including Main Distribution Frames (MDF), building entrance equipment and station protection modules.
- Access network equipment such as remote terminals, line repeaters, multiplexers, cross-connects, WAN equipment, Network Interface Devices (NID).
- Data lines and security systems.
- CATV line amplifiers and power inserters.
- Sprinkler systems.

Electrical Parameters (T_{amb}=25°C)

Part Number	V _{DRM}	I _{DRM}	V _{BO}	I _{BO}	V _T	I _T	C _o	I _H
	Min.	Max.	Max.	Max.	Max.	Max.	Max.	Min.
	V	uA	V	mA	V	A	pF	mA
PT0080SB	6	5	25	800	4	2.2	75	50
PT0300SB	25	5	40	800	4	2.2	75	50
PT0640SB	58	5	77	800	4	2.2	65	120
PT0720SB	65	5	88	800	4	2.2	65	120
PT0900SB	75	5	98	800	4	2.2	60	120
PT1100SB	90	5	130	800	4	2.2	60	120



Part Number	V _{DRM}	I _{DRM}	V _{BO}	I _{BO}	V _T	I _T	C _o	I _H
	Min.	Max.	Max.	Max.	Max.	Max.	Max.	Min.
	V	uA	V	mA	V	A	pF	mA
PT1300SB	120	5	160	800	4	2.2	60	120
PT1500SB	140	5	180	800	4	2.2	60	120
PT1800SB	170	5	220	800	4	2.2	60	120
PT2000SB	180	5	220	800	4	2.2	60	120
PT2300SB	190	5	260	800	4	2.2	55	120
PT2600SB	220	5	300	800	4	2.2	50	120
PT3100SB	275	5	350	800	4	2.2	40	120
PT3500SB	320	5	400	800	4	2.2	40	120
PT3800SB	360	5	460	800	4	2.2	35	120
PT4200SB	400	5	540	800	4	2.2	35	120

Electrical Characteristics

V_{DRM} Stand-off voltage, is measured at I_{DRM}

I_H Holding current.

V_{BO} Breakover voltage, is measured at 100V/μs.

I_{BO} Breakover current.

C_o Off-state capacitance is measured in V_{DC}=2V@1MHz.

I_T ON-state current

I_{DRM} Leakage current, is measured at V_{DRM}.

V_T On-state voltage.

Part Numbering System

PT

(A)

XXX

(B)

S

(C)

B

(D)

(A) PulseTake's Semiconductor Surge Arrester.

(B) Series: 0060,0300,0640.....3500,3800,4200 etc.

(C) T: Package:DO-214AA(SMB)

(D) Rating Sure Voltage: B: $\geq 4KV(10/700\mu s)$

Electrical Characteristics Curves

Figure1 V-I Characteristics

Figure2 $t_r \times t_d$ Pulse Wave-form

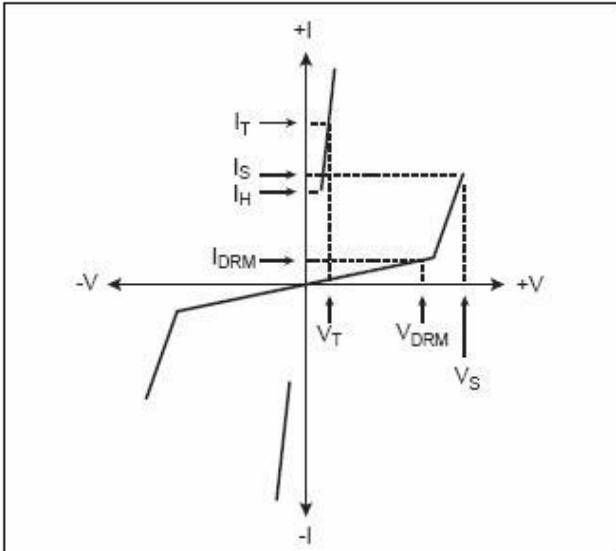


Figure 3 Normalized V_S Change versus Junction Temperature

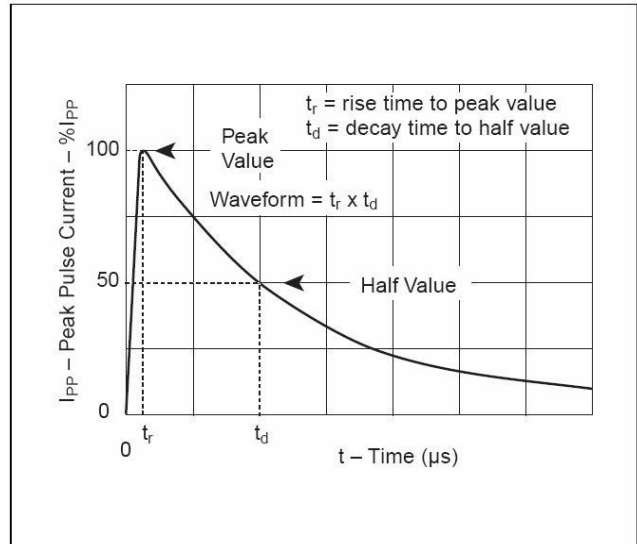
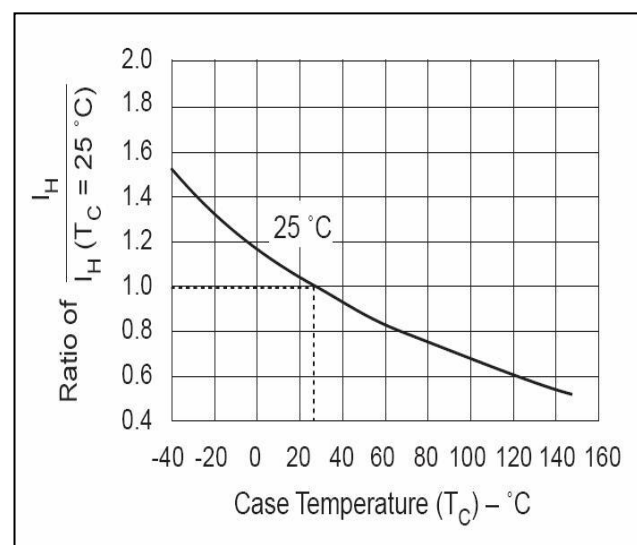
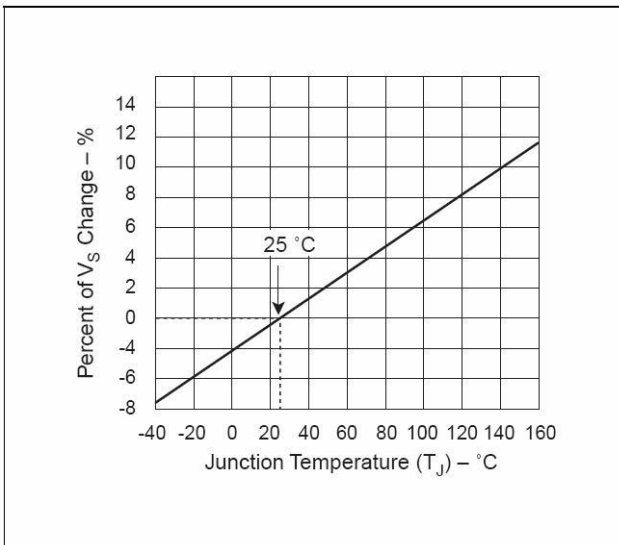


Figure 4 Normalized DC Holding Current

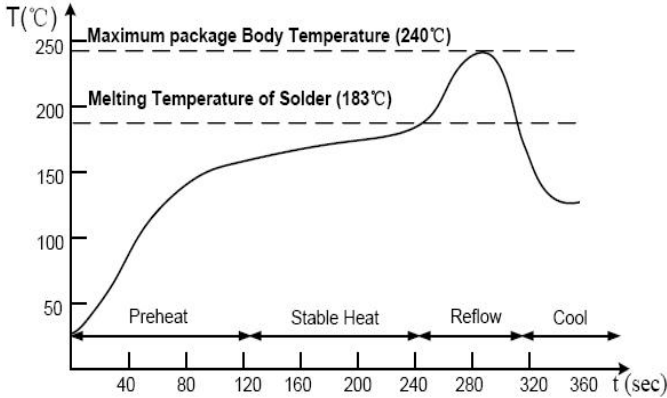


Thermal Considerations

Package	DO-214AC/SMA	Symbol	Parameter	Value	Unit
		T_J	Operating Junction Temperature	-40 to +150	$^{\circ}\text{C}$
		T_S	Storage Temperature Range	-40 to +150	$^{\circ}\text{C}$
		$R_{\theta JA}$	Junction to Ambient on printed circuit	90	$^{\circ}\text{C}/\text{W}$



Solder Reflow Recommendations

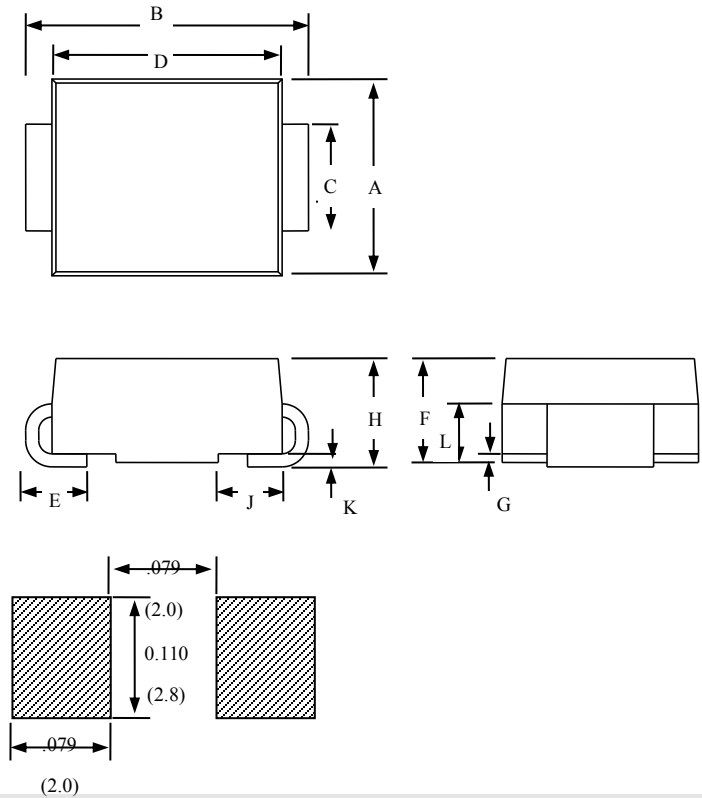


- Recommended reflow methods: IR, vapor phase oven, hot air oven, wave solder.
- The device can be exposed to a maximum temperature of 265°C for 10 seconds.
- Devices can be cleaned using standard industry methods and solvents.


Notes: If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

Product Dimensions

Dimension	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.134	0.155	3.40	3.94
B	0.205	0.22	5.21	5.59
C	0.075	0.083	1.90	2.11
D	0.166	0.185	4.22	4.70
E	0.036	0.056	0.91	1.42
F	0.073	0.087	1.85	2.2
G	0.002	0.008	0.05	0.20
H	0.077	0.094	1.95	2.40
J	0.043	0.053	1.09	1.35
K	0.008	0.014	0.20	0.35
L	0.039	0.049	0.99	1.24



Summary of Packing Options

Package Type	Description	Packing Quantity	Industry Standard
DO-214AA(SMB) 	Embossed Carrier Reel Pack	3000PCS	EIA-481-D