

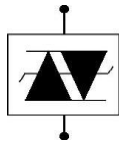
## Product Overview

A Semiconductor discharge tube is an overvoltage protection device, which is made using the thyristor principle, relying on the breakdown current of the PN junction to trigger the device to conduct discharge, which can flow through a large inrush current or pulse current

## Product Features

- Low voltage and overshoot
- Low on-state voltage
- Does not degrade with use
- Fails short circuit when surged in excess of ratings
- Low capacitance

## Package



## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C, continued)

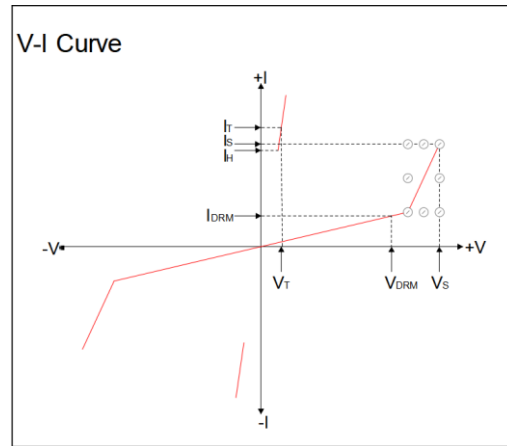
Part Number	IDRM@VDRM		VS①@IS		V <sub>T</sub> @I <sub>T</sub>		IH	C <sub>O</sub>
	μA	V	V	mA	V	A	mA	pF
	max	min	max	max	max	max	min	max
DP0080SA	5	6	15	800	4	2.2	30	45
DP0300SA	5	25	40	800	4	2.2	30	45
DP0640SA	5	58	77	800	4	2.2	120	50
DP0720SA	5	65	87	800	4	2.2	120	50
DP0900SA	5	75	98	800	4	2.2	120	50
DP1100SA	5	90	130	800	4	2.2	120	50
DP1300SA	5	120	160	800	4	2.2	120	50
DP1500SA	5	140	180	800	4	2.2	120	50
DP1800SA	5	170	220	800	4	2.2	120	60
DP2300SA	5	190	260	800	4	2.2	120	60
DP2600SA	5	220	300	800	4	2.2	120	50
DP3100SA	5	275	350	800	4	2.2	120	40
DP3500SA	5	320	400	800	4	2.2	120	40
DP3800SA	5	340	450	800	4	2.2	120	40
DP4200SA	5	400	520	800	4	2.2	20	40

## ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C, RH=45%-75%, unless otherwise noted)

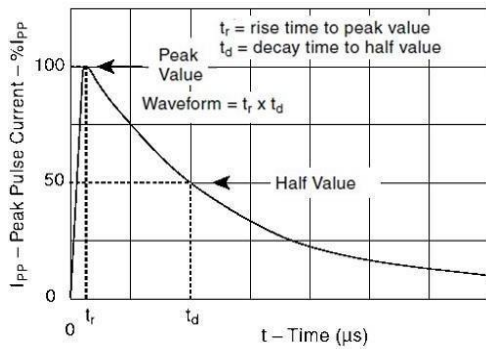
Symbol	Parameter	Value	Unit
T <sub>J</sub>	Operating Junction Temperature	-40~+150	°C
T <sub>S</sub>	Storage Temperature Range	-65~+150	°C

**ELECTRICAL CHARACTERISTICS** ( $T_A=25^\circ\text{C}$ )

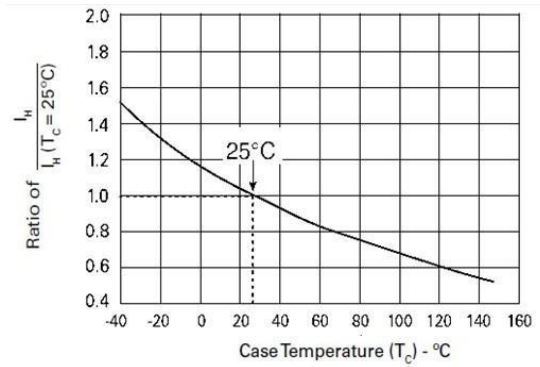
Symbol	Parameter
$V_{\text{DRM}}$	Peak off-state voltage
$I_{\text{DRM}}$	Off-state current
$V_s$	Switching voltage
$I_s$	Switching current
$V_{\text{r}}$	On-state voltage
$I_{\text{r}}$	On-state current
$I_{\text{h}}$	Holding current
$C_o$	Off-state capacitance



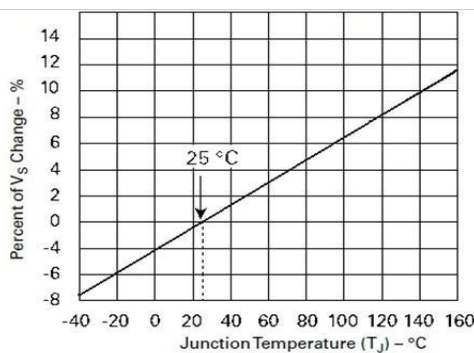
Tr x Td Pulse waveform



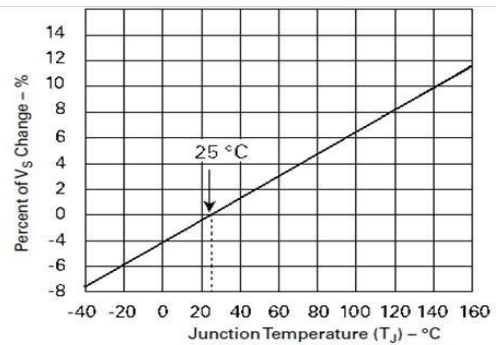
Normalized DC holding current vs. case temperature



Vs change vs. junction temperature



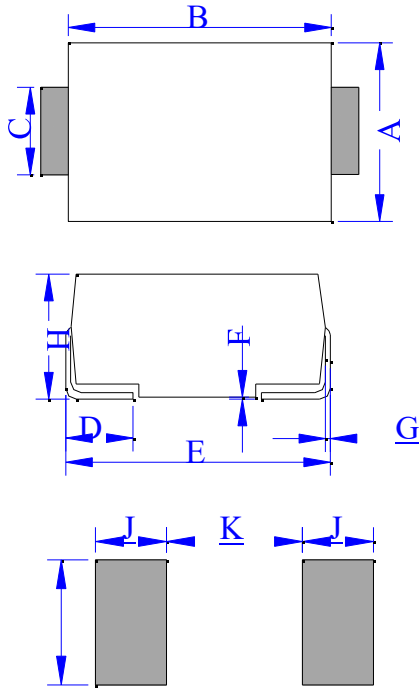
Co change vs. bias voltage ( $V_R=1V$ )



**Surge rating**

Series	$I_{\text{pp}}(\text{A})$ min		
	8/20 $\mu\text{s}$	10/360 $\mu\text{s}$	10/1000 $\mu\text{s}$
A	150	50	35

## Package size



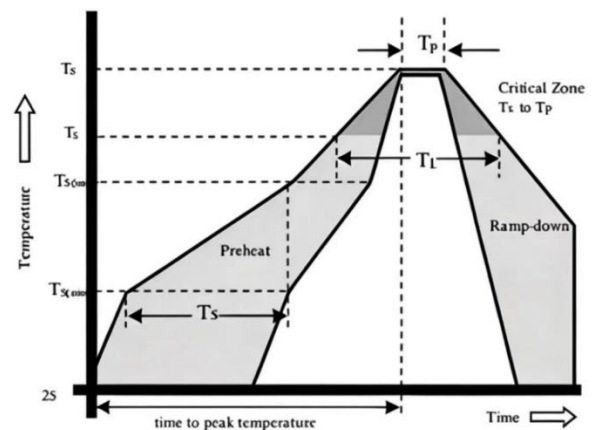
DO-214AA (SMB)

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	3.30	3.94	0.130	0.155
B	4.30	4.80	0.169	0.189
C	1.90	2.20	0.075	0.087
D	0.95	1.52	0.037	0.060
E	5.20	5.60	0.205	0.220
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.10	2.40	0.083	0.094
J	2.20		0.087	
K		2.60		0.102
L	2.30		0.091	

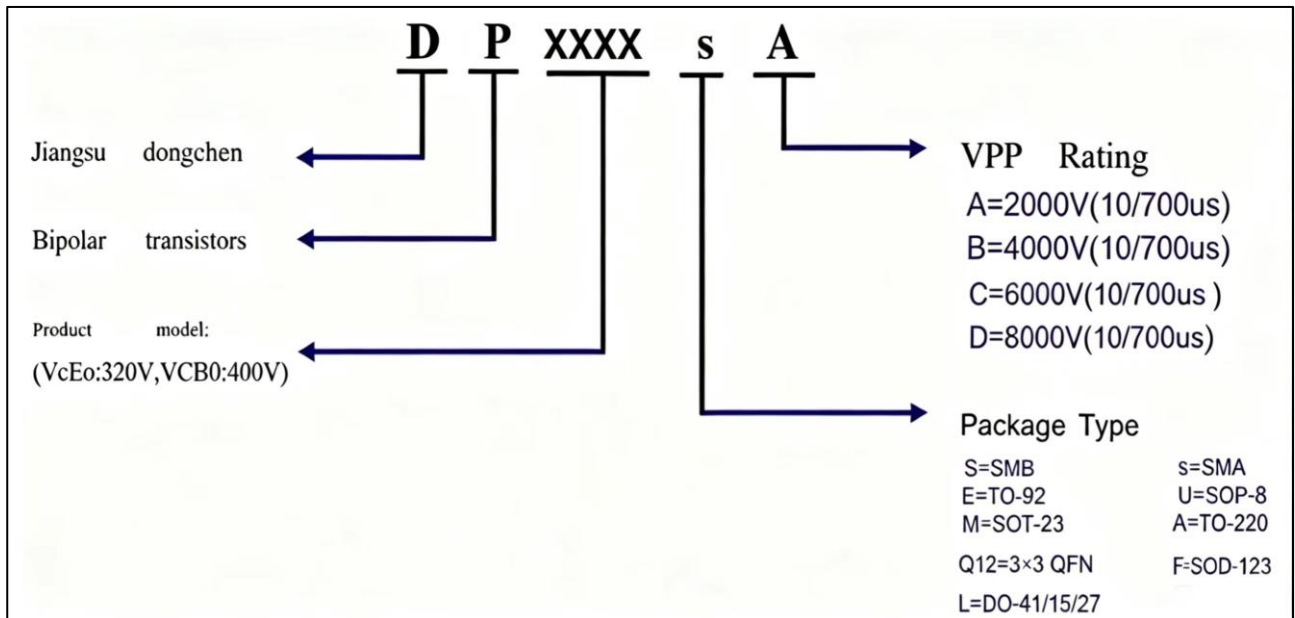
## Welding parameters

### Reflow Profile

Reflow Condition		Pb-Free Assembly
Pre Heat	Temperature Min.	+150°C
	Temperature Max.	+200°C
	Time(Min to Max)	60 – 180 seconds
Average ramp up rate (Liquidus Temp (T <sub>L</sub> ) to peak)		3°C/second max
T <sub>s</sub> (nus) to T <sub>L</sub> - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T <sub>L</sub> ) (Liquidus)	217°C
	- Temperature (T <sub>L</sub> )	60 – 150 seconds
Peak Temp (T <sub>P</sub> )		260±0/5 °C
Time within 5°C of actual Peak Temp (T <sub>P</sub> )		8-15 seconds
Ramp-down Rate		6°C/s max
Time 25°C to peak Temp (T <sub>P</sub> )		8 min max.
Do not exceed		260°C



## Naming conventions



## Marking



## Order instructions: Ordering method

Part Number	Component Package	QTY/Reel	Reel Size
DPxxxxSA	DO-214AA(SMB)	3000PCS	13"

## Note

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