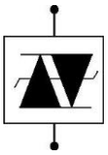
Product Overview

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



SMB
(DO-214AA)

ELECTRICAL CHARACTERISTICS (T_A=25℃, continued)

Part Number	IDRM@VDRM		VS①@IS		V_T@I_T		IH	C_O
	μA	V	V	mA	V	A	mA	pF
	max	min	max	max	max	max	min	max
DP0080SC	5	6	15	800	4	2.2	30	80
DP0300SC	5	25	40	800	4	2.2	30	80
DP0640SC	5	58	77	800	4	2.2	120	100
DP0720SC	5	65	87	800	4	2.2	120	100
DP0900SC	5	75	98	800	4	2.2	120	100
DP1100SC	5	90	130	800	4	2.2	120	100
DP1300SC	5	120	160	800	4	2.2	120	100
DP1500SC	5	140	180	800	4	2.2	120	150
DP1800SC	5	170	220	800	4	2.2	120	120
DP2300SC	5	190	260	800	4	2.2	120	120
DP2600SC	5	220	300	800	4	2.2	120	80
DP3100SC	5	275	350	800	4	2.2	120	80
DP3500SC	5	320	400	800	4	2.2	120	80
DP3800SC	5	340	450	800	4	2.2	120	80
DP4200SC	5	400	520	800	4	2.2	20	80

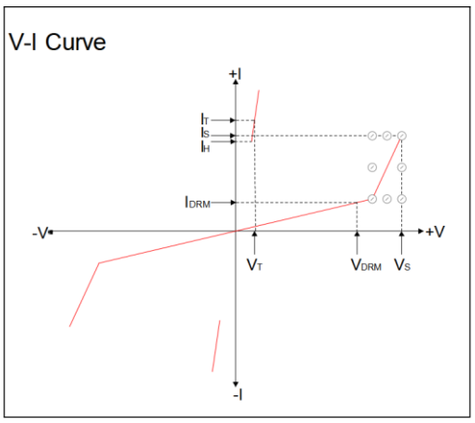
ABSOLUTE MAXIMUM RATINGS (T_A=25ºC, RH=45%-75%, unless otherwise noted)

Symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature	-40～+150	℃
T_S	Storage Temperature Range	-65～+150	℃

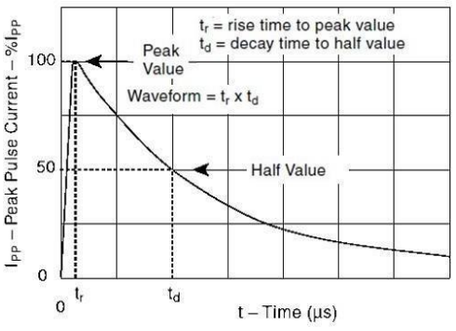
ELECTRICAL CHARACTERISTICS (T_A=25℃)

Symbol	Parameter
V_{DRM}	Peak off-state voltage
I_{DRM}	Off-state current
V_S	Switching voltage
I_S	Switching current
V_T	On-state voltage
I_F	On-state current
I_H	Holding current
C_O	Off-state capacitance

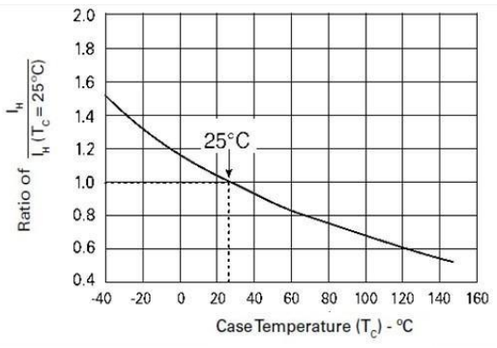
V-I Curve



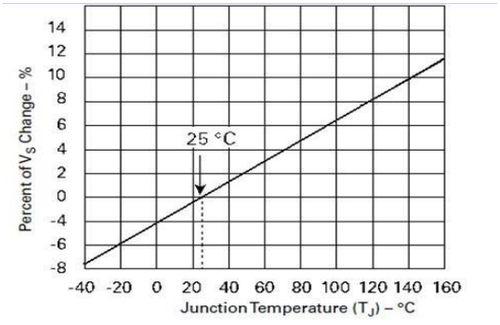
Tr x Td Pulse waveform



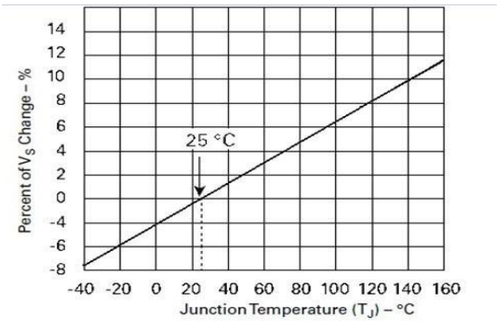
Normalized DC holding current vs. case temperature



Vs change vs. junction temperature



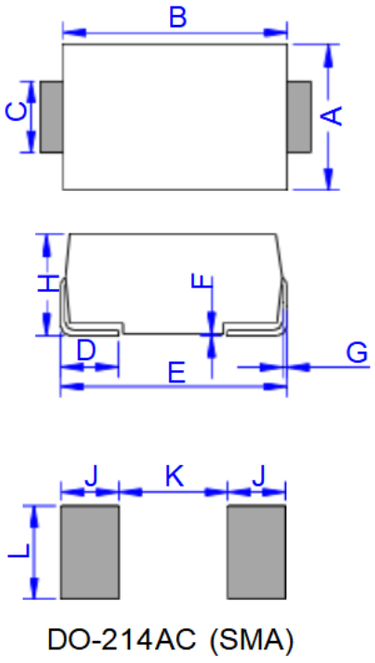
Co change vs. bias voltage （V_R=1V）



Surge rating

Series	I_{PP}(A) min		
	8/20µs	10/360µs	10/1000µs
C	400	150	100

Package size



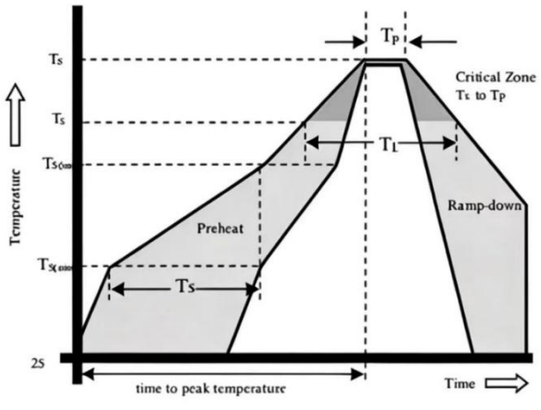
DO-214AC (SMA)

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.60	3.00	0.102	0.118
B	4.15	4.65	0.163	0.183
C	1.25	1.65	0.049	0.065
D	0.95	1.52	0.037	0.060
E	4.90	5.30	0.193	0.209
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.00	2.44	0.079	0.096
J	2.00		0.079	
K		2.30		0.091
L	1.80		0.071	

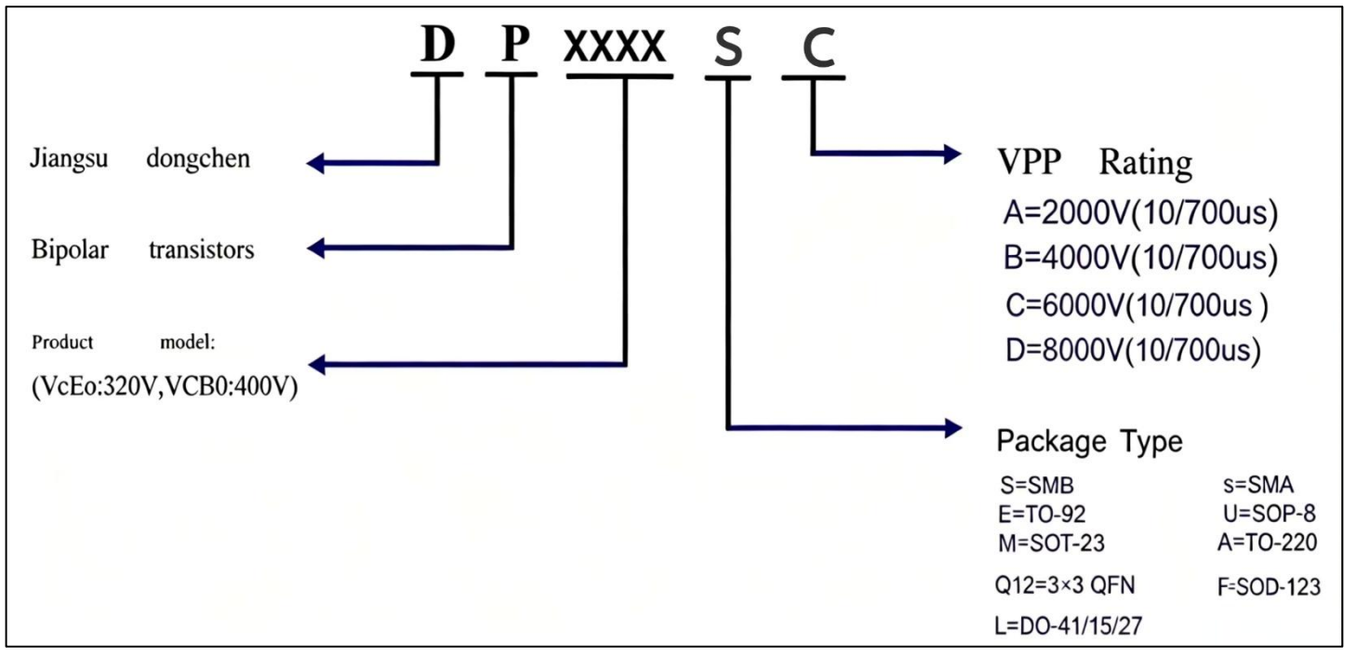
Welding parameters

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_L) to peak)		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Temperature (T_L)	60 – 150 seconds
Peak Temp (T_P)		260+0/-5 °C
Time within 5°C of actual Peak Temp (T_P)		8-15 seconds
Ramp-down Rate		6°C/s max
Time 25°C to peak Temp (Tr)		8 min max.
Do not exceed		260°C



Naming conventions



Marking

DPxxxxSC	DPxxxxSC

Order instructions: Ordering method

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

Note

The purchased products, services and functions are determined in accordance with the terms of the contract signed between Dongchen and the customer. All or part of the products, services and functions described in this document may be beyond the scope of procurement or use. Unless otherwise provided in the contract, all statements, information and recommendations in this document are provided "as is" without any express or implied warranties, guarantees or representations. The information in this document is subject to change without notice. Every effort has been made to ensure the accuracy of the content in the preparation of this document, but all statements, information and recommendations in this document do not constitute any kind of express or implied guarantee.