

P0080TA - P5000TA Series

ROHS

DO-214AC(SMA) @10/700 μ S, 2KV

Thyristor Surge Suppressors (TSS)

Description

P0080TA - P5000TA Series are designed to protect broadband equipment such as modems, line card, CPE and DSL from damaging over-voltage transients.

The series provides a surface mount solution that enables equipment to comply with global regulatory standards.

Features and Benefits

- ◆ Low voltage overshoot
- ◆ Low on-state voltage
- ◆ Does not degrade surge capability after multiple surge events within limit
- ◆ Fails short circuit when surged in excess of ratings
- ◆ Low Capacitance

Applicable Global Standards

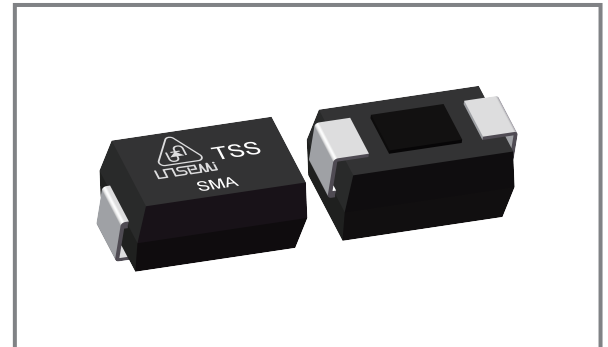
- ◆ TIA-968-A
- ◆ ITU K.20/21 Enhanced level
- ◆ ITU K.20/21 Basic Level
- ◆ GR 1089 Inter building
- ◆ IEC 61000-4-5
- ◆ YD/T 1082
- ◆ YD/T 993
- ◆ YD/T 950

Electrical Parameters

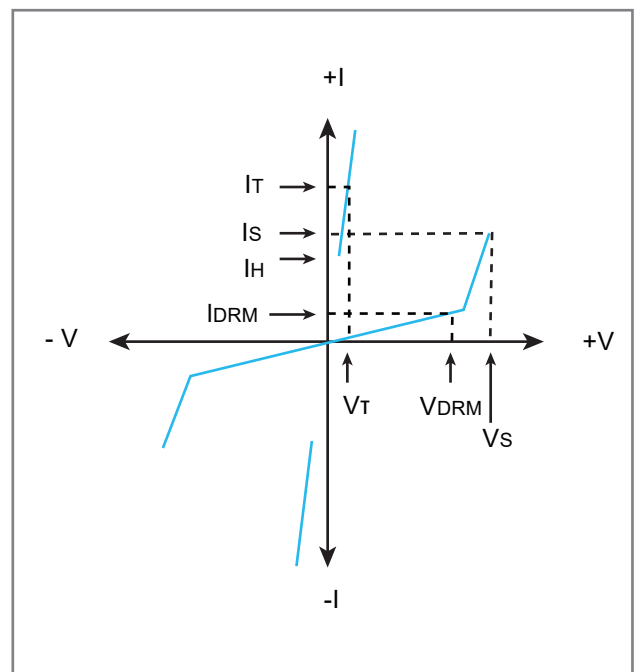
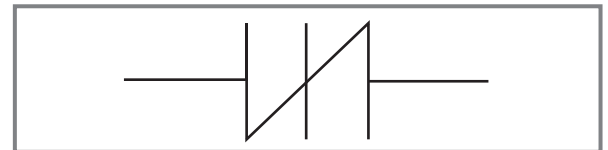
Parameter	Definition
I_S	Switching Current - maximum current required to switch to on state
I_{DRM}	Leakage Current - maximum peak off-state current measured at V_{DRM}
I_H	Holding Current - minimum current required to maintain on state
I_T	On-state Current - maximum rated continuous on-state current
V_S	Switching Voltage - maximum voltage prior to switching to on state
V_{DRM}	Peak Off-state Voltage - maximum voltage that can be applied while maintaining off state
V_T	On-state Voltage - maximum voltage measured at rated on-state current
C_0	Off-state Capacitance - typical capacitance measured in off state



www.unsemi.com.tw



Schematic Symbol



Electrical Characteristics

Part Number	Marking	V_{DRM} @ $I_{DRM}=5\mu A$	I_{DRM}	V_s @100V/ μ S	I_s	V_T @ $I_T=2.2A$	I_T	I_H	C_o @1MHz
		V Min.	μ A Max.	V Max.	mA Max.	V Max.	A Max.	mA Min.	pF Typ.
P0080TA	P008A	6	5	25	800	4	2.2	50	50
P0300TA	P03A	25	5	40	800	4	2.2	50	70
P0640TA	P06A	58	5	77	800	4	2.2	150	50
P0720TA	P07A	65	5	88	800	4	2.2	150	50
P0900TA	P09A	75	5	98	800	4	2.2	150	45
P1100TA	P11A	90	5	130	800	4	2.2	150	45
P1300TA	P13A	120	5	160	800	4	2.2	150	45
P1500TA	P15A	140	5	180	800	4	2.2	150	40
P1800TA	P18A	170	5	220	800	4	2.2	150	40
P2000TA	P20A	180	5	220	800	4	2.2	150	40
P2300TA	P23A	190	5	260	800	4	2.2	150	35
P2600TA	P26A	220	5	300	800	4	2.2	150	35
P3100TA	P31A	275	5	350	800	4	2.2	150	30
P3500TA	P35A	320	5	400	800	4	2.2	150	30
P3800TA	P38A	360	5	460	800	4	2.2	150	30
P4200TA	P42A	400	5	520	800	4	2.2	150	30
P4500TA	P45A	420	5	540	800	4	2.2	150	30
P5000TA	P50A	440	5	600	800	4	2.2	150	30

Notes:

- Absolute maximum ratings measured at $T_A = 25^\circ C$ (unless otherwise noted).
- Devices are bi-directional.


Surge Ratings

Series	2/10 μ S ¹	8/20 μ S ¹	10/160 μ S ¹	10/560 μ S ¹	10/1000 μ S ¹	5/320 μ S ¹	I_{TSM} 50/60Hz	di/dt
	2/10 μ S ²	1.2/50 μ S ²	10/160 μ S ²	10/560 μ S ²	10/1000 μ S ²	10/700 μ S ²		
	A min	A min	A min	A min	A min	A min	A min	Amps/ μ s max
A	150	150	90	50	45	50	20	500

Notes:

1. Current waveform in μ s
 2. Voltage waveform in μ s
- Peak pulse current rating (IPP) is repetitive and guaranteed for the life of the product.
 - IPP ratings applicable over temperature range of $-40^\circ C$ to $+85^\circ C$
 - The device must initially be in thermal equilibrium with $-40^\circ C < T_J < +150^\circ C$

Thermal Considerations

Package	Symbol	Parameter	Value	Unit
DO-214AC 	T _J	Operating Junction Temperature Range	- 40 to +150	°C
	T _s	Storage Temperature Range	- 40 to +150	°C
	R _{θJA}	Thermal Resistance: Junction to Ambient	90	°C/W

Characteristic Curves

Figure 1 - V - I Characteristics

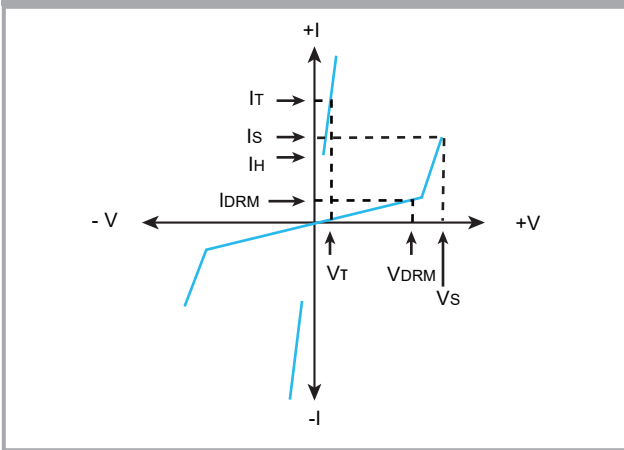


Figure 2 - $t_r \times t_d$ Pulse Waveform

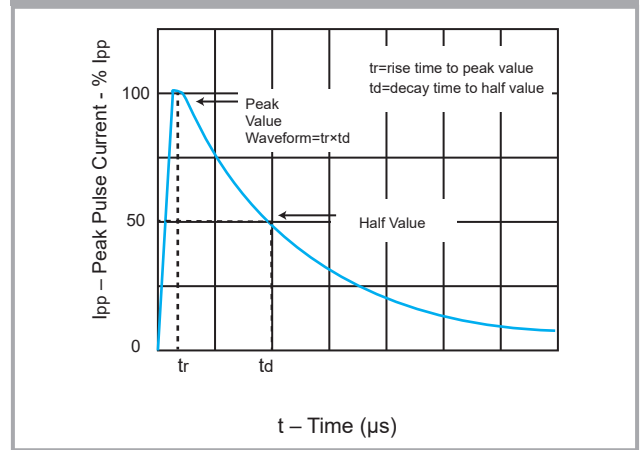


Figure 3 - Normalized V_S Change Versus Junction Temperature

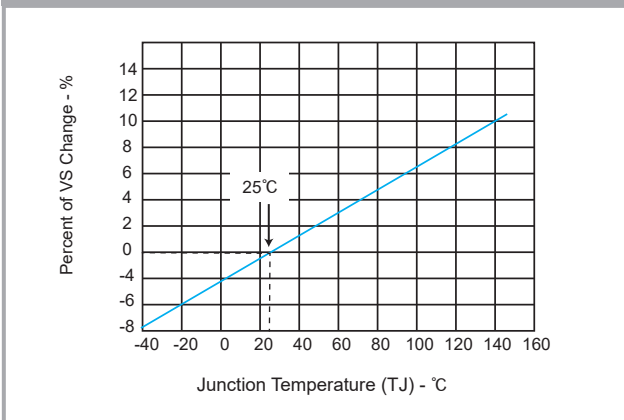
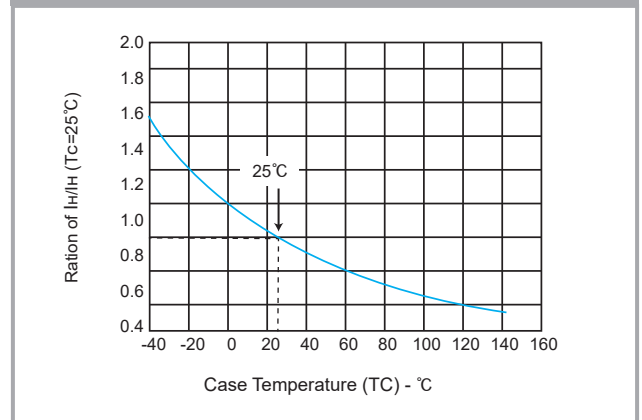
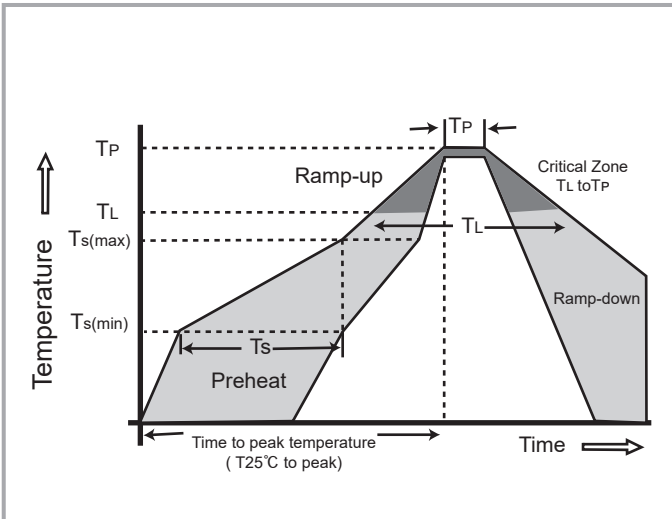


Figure 4 - Normalized DC Holding Current Versus Case Temperature

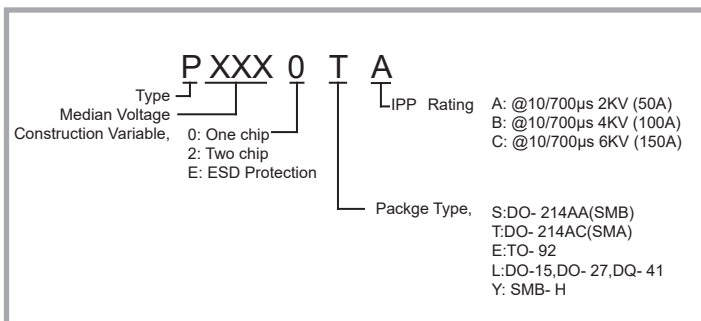


Soldering Parameters

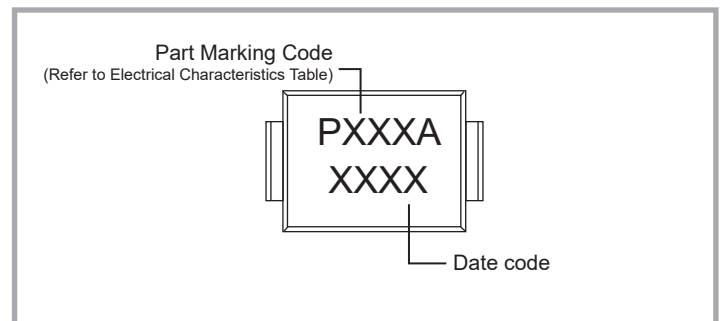


Reflow Condition		Lead-free assembly
Pre Heat	-Temperature Min (Ts(min))	+150°C
	-Temperature Max (Ts(max))	+200°C
	- Time (min to max) (Ts)	60 -180 Seconds
Average ramp up rate (Liquidus Temp TL to peak)		3°C/Second max
Ts(max) to TL - Ramp-up Rate		5°C/Second max
Reflow	- Temperature (TL) (Liquidus)	217°C
	- Time (min to max) (Ts)	60 -150 Seconds
Peak Temperature (TP)		260 +0/-5°C
Time within 5°C of actual peak Temperature (TP)		30 Seconds Max
Ramp-down Rate		6°C/Second Max
Time 25°C to peak Temperature (TP)		8 minutes Max
Do not exceed		+260°C

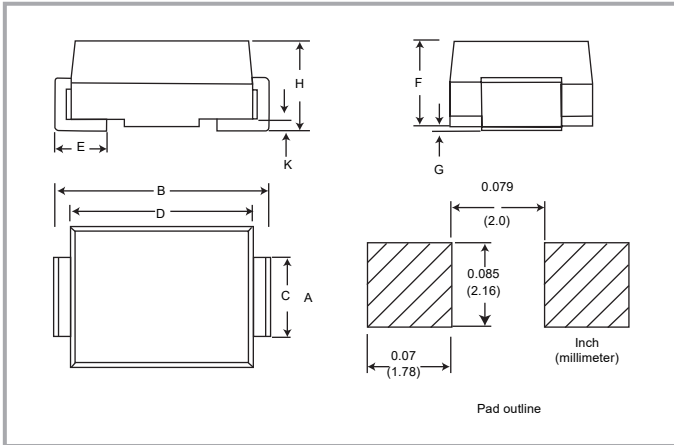
Part Numbering



Part Marking



Dimensions DO-214AC

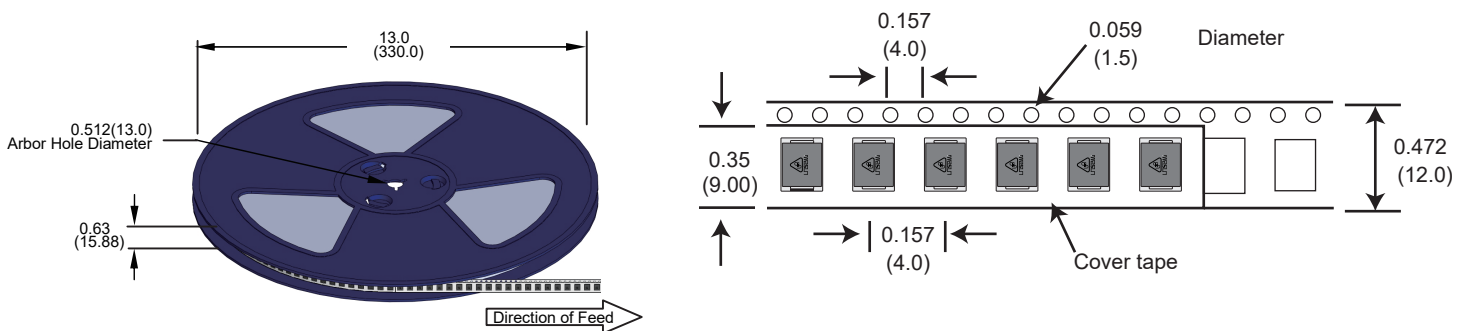


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.100	0.110	2.54	2.79
B	0.194	0.208	4.93	5.28
C	0.049	0.065	1.25	1.65
D	0.157	0.177	3.99	4.50
E	0.030	0.060	0.76	1.52
F	0.076	0.096	1.90	2.45
G	0.002	0.008	0.05	0.20
H	0.078	0.090	1.98	2.95
K	0.006	0.012	0.15	0.30

Packaging

Part Number	Component Package	Quantity	Packaging Option	Packaging Specification
Pxxx0TA	DO-214AC	5000	Tape & Reel -12mm/13"tape	EIA -481

Tape and Reel Specifications



Disclaimer

UNSEMI RESERVES THE RIGHT TO MAKE CHANGE ON OUR PRODUCTS , PRODUCTS SPECIFICATION AND DATA WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

UN SEMICONDUCTOR LIMITED its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "UNSEMI") does not give any representations or warranties for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

In no event shall UNSEMI be liable for any indirect, incidental, punitive, special or consequential damages (including any and all implied warranties, warranties of fitness for particular purpose, non-infringement and merchantability.) whether or not such damages are based on tort (including negligence), warranty, breach of contract or any other legal theory.

Statements regarding the suitability of products for certain types of applications are based on UNSEMI knowledge of typical requirements that are often placed on UNSEMI products in generic applications. Such statements are not binding, statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify UNSEMI's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Unless otherwise agreed in writing, UNSEMI product is not designed, authorized or warranted to be suitable for use in medical life-saving, or life-sustaining application , nor in applications where failure or malfunction of a UNSEMI product can reasonably be expected to result in personal injury, death or severe property or environmental damage. UNSEMI and its suppliers accept no liability for inclusion or use of UNSEMI products in such equipment or applications and therefore such inclusion and/or use is at the customer's own risk.

All referenced brands, product names, service names and trademarks are the property of their respective owners.