

25TTS...SPbF High Voltage Series



Vishay High Power Products Surface Mountable
Phase Control SCR, 16 A

ABSOLUTE MAXIMUM RATINGS						
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES		UNITS
				TYP.	MAX.	
Maximum average on-state current	$I_{T(AV)}$	$T_C = 93\text{ }^{\circ}\text{C}$, 180° conduction half sine wave		16		A
Maximum RMS on-state current	I_{RMS}			25		
Maximum peak, one-cycle, non-repetitive surge current	I_{TSM}	10 ms sine pulse, rated V_{RRM} applied		300		
		10 ms sine pulse, no voltage reapplied		350		
Maximum I^2t for fusing	I^2t	10 ms sine pulse, rated V_{RRM} applied		450		A^2s
		10 ms sine pulse, no voltage reapplied		630		
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	$t = 0.1\text{ ms to }10\text{ ms}$, no voltage reapplied		6300		$A^2\sqrt{s}$
Maximum on-state voltage drop	V_{TM}	16 A, $T_J = 25\text{ }^{\circ}\text{C}$		1.25		V
On-state slope resistance	r_t	$T_J = 125\text{ }^{\circ}\text{C}$		12.0		$m\Omega$
Threshold voltage	$V_{T(TO)}$			1.0		V
Maximum reverse and direct leakage current	I_{RM}/I_{DM}	$T_J = 25\text{ }^{\circ}\text{C}$	$V_R = \text{Rated } V_{RRM}/V_{DRM}$	0.5		mA
		$T_J = 125\text{ }^{\circ}\text{C}$		10		
Holding current	I_H	25TTS08, 25TTS12	Anode supply = 6 V, resistive load, initial $I_T = 1\text{ A}$	-	100	
		25TTS16		100	150	
Maximum latching current	I_L	Anode supply = 6 V, resistive load		200		
Maximum rate of rise of off-state voltage	dV/dt			500		V/ μs
Maximum rate of rise of turned-on current	dI/dt			150		A/ μs

TRIGGERING					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum peak gate power	P_{GM}			8.0	W
Maximum average gate power	$P_{G(AV)}$			2.0	
Maximum peak positive gate current	$+I_{GM}$			1.5	A
Maximum peak negative gate voltage	$-V_{GM}$			10	V
Maximum required DC gate current to trigger	I_{GT}	Anode supply = 6 V, resistive load, $T_J = -10\text{ }^{\circ}\text{C}$		60	mA
		Anode supply = 6 V, resistive load, $T_J = 25\text{ }^{\circ}\text{C}$		45	
		Anode supply = 6 V, resistive load, $T_J = 125\text{ }^{\circ}\text{C}$		20	
Maximum required DC gate voltage to trigger	V_{GT}	Anode supply = 6 V, resistive load, $T_J = -10\text{ }^{\circ}\text{C}$		2.5	V
		Anode supply = 6 V, resistive load, $T_J = 25\text{ }^{\circ}\text{C}$		2.0	
		Anode supply = 6 V, resistive load, $T_J = 125\text{ }^{\circ}\text{C}$		1.0	
Maximum DC gate voltage not to trigger	V_{GD}	$T_J = 125\text{ }^{\circ}\text{C}$, $V_{DRM} = \text{Rated value}$		0.25	
Maximum DC gate current not to trigger	I_{GD}			2.0	mA

SWITCHING					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Typical turn-on time	t_{gt}	$T_J = 25\text{ }^{\circ}\text{C}$		0.9	μs
Typical reverse recovery time	t_{rr}	$T_J = 125\text{ }^{\circ}\text{C}$		4	
Typical turn-off time	t_q			110	



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THERMAL AND MECHANICAL SPECIFICATIONS				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction and storage temperature range	T_J, T_{Stg}		- 40 to 125	°C
Soldering temperature	T_S	For 10 s (1.6 mm from case)	240	
Maximum thermal resistance, junction to case	R_{thJC}	DC operation	1.1	°C/W
Typical thermal resistance, junction to ambient (PCB mount)	$R_{thJA}^{(1)}$		40	
Approximate weight			2	g
			0.07	oz.
Marking device		Case style D ² PAK (SMD-220)	25TTS08S	
			25TTS12S	
			25TTS16S	

Note

⁽¹⁾ When mounted on 1" square (650 mm²) PCB of FR-4 or G-10 material 4 oz. (140 µm) copper 40 °C/W
For recommended footprint and soldering techniques refer to application note #AN-994

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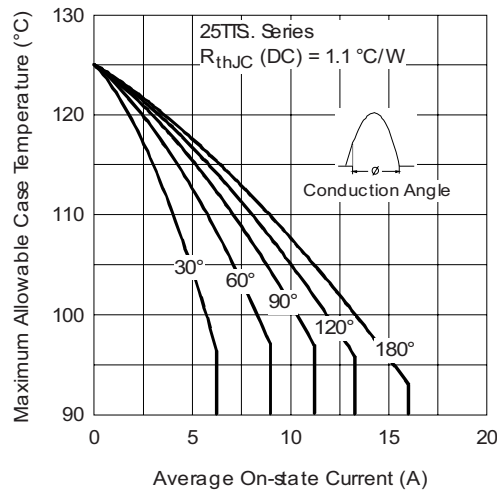


Fig. 1 - Current Rating Characteristics

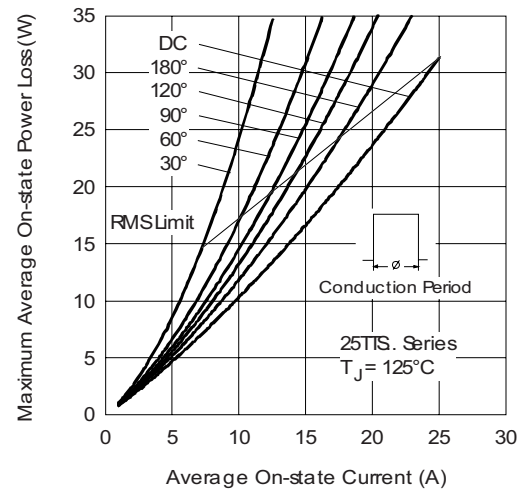


Fig. 4 - On-State Power Loss Characteristics

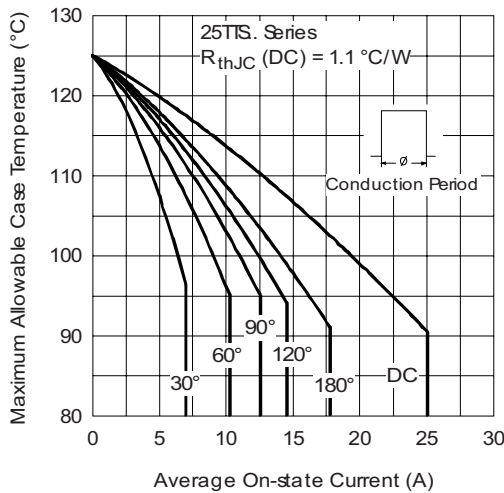


Fig. 2 - Current Rating Characteristics

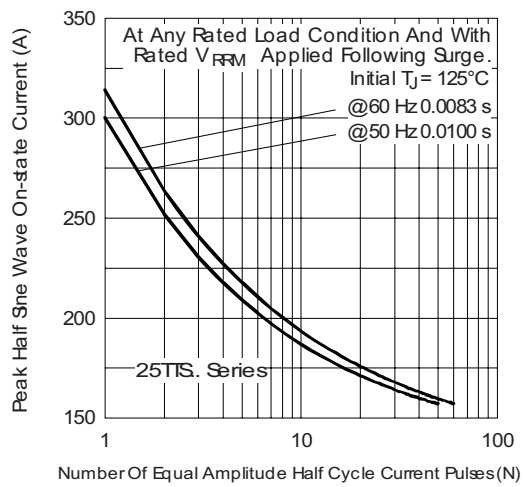


Fig. 5 - Maximum Non-Repetitive Surge Current

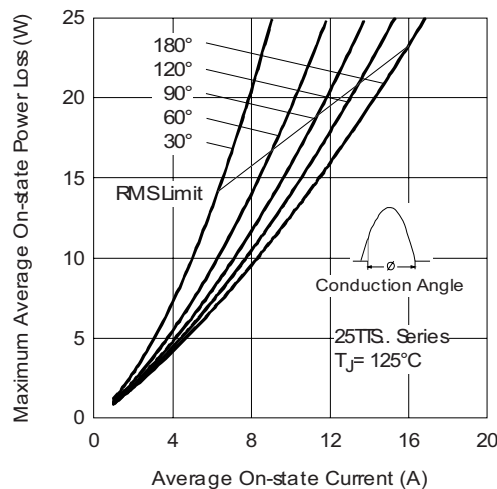


Fig. 3 - On-State Power Loss Characteristics

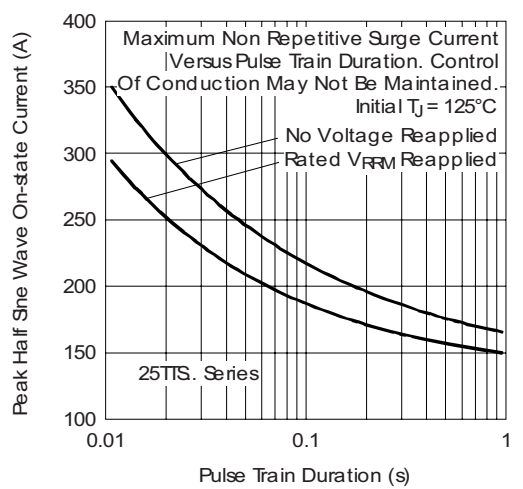


Fig. 6 - Maximum Non-Repetitive Surge Current



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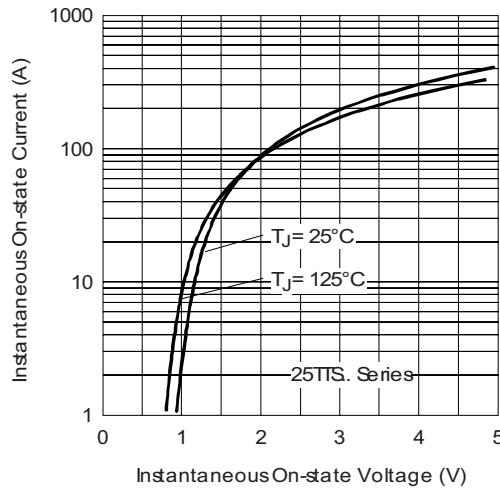


Fig. 7 - On-State Voltage Drop Characteristics

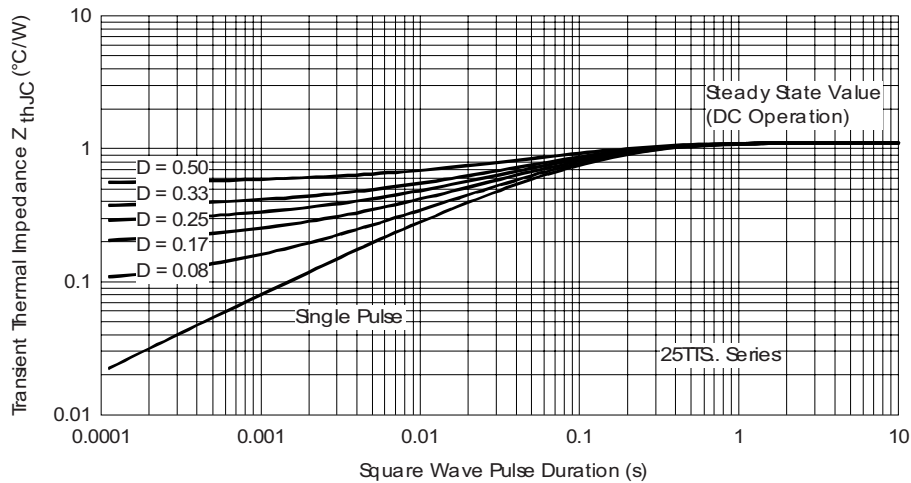


Fig. 8 - Gate Characteristics

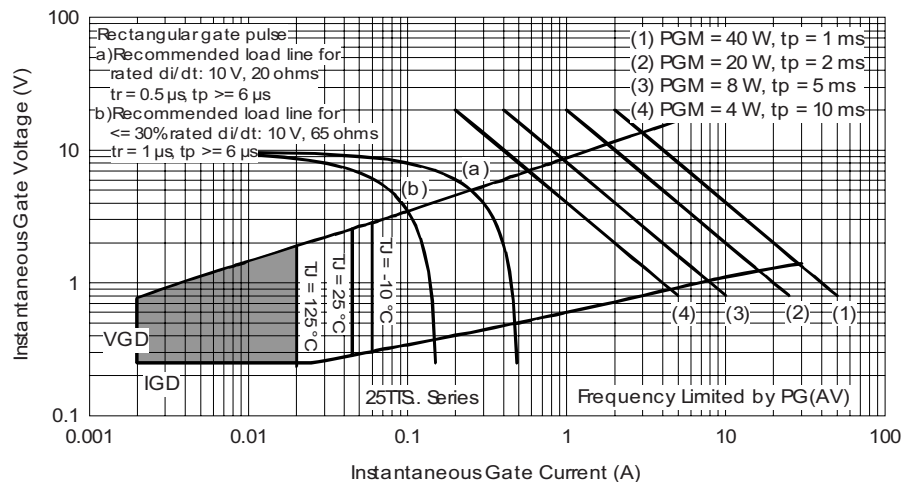


Fig. 9 - Thermal Impedance Z_{thJC} Characteristics

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ORDERING INFORMATION TABLE

Device code	25	T	T	S	12	S	TRL	PbF		
	1	2	3	4	5	6	7	8		
1	-	Current rating (25 = 25 A)								
2	-	Circuit configuration:								
		T = Single thyristor								
3	-	Package:								
		T = TO-220AC								
4	-	Type of silicon:								
		Standard recovery rectifier								
5	-	Voltage rating = Voltage code x 100 = V_{RRM}					08 = 800 V 12 = 1200 V 16 = 1600 V			
6	-	S = TO-220 D ² PAK (SMD-220) version								
7	-	<ul style="list-style-type: none"> • None = Tube • TRL = Tape and reel (left oriented) • TRR = Tape and reel (right oriented) 								
8	-	<ul style="list-style-type: none"> • None = Standard production • PbF = Lead (Pb)-free 								

LINKS TO RELATED DOCUMENTS	
Dimensions	www.vishay.com/doc?95046
Part marking information	www.vishay.com/doc?95054
Packaging information	www.vishay.com/doc?95032



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