

FEATURES

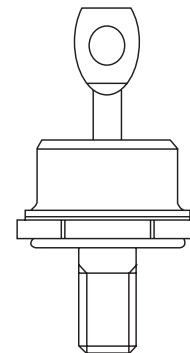
- 1). High surge current capability
- 2). Designed for a wide range of applications
- 3). Stud cathode and stud anode version
- 4). Leaded version available
- 5). Types up to 1600V V_{RRM}

TYPICAL APPLICATIONS

- 1). Battery charges
- 2). Converters
- 3). Power supplies
- 4). Machine tool controls

MAJOR RATINGS AND CHARACTERISTICS

Parameters		60HF(R)		UNIT
		10 to 120	140 to 160	
$I_{F(AV)}$		60	60	A
	@ TC	140	110	°C
$I_{F(RMS)}$		110		A
I_{FSM}	@ 50Hz	1200		A
	@ 60Hz	1250		A
I^2t	@ 50Hz	7100		A ² s
	@ 60Hz	6450		A ² s
V_{RRM}	range	100 to 1200	1400 to 1600	V
T_J	range	- 65 to 180	- 65 to 150	°C



ELECTRICAL SPECIFICATIONS

1). Voltage Ratings

Type number	Voltage Code	V_{RRM} , maximum repetitive peak reverse voltage	V_{RSM} , maximum non-repetitive peak reverse voltage	$V_{R(BR)}$, minimum avalanche voltage	I_{RRM} max. @ $T_J = T_{J \text{ max}}$
		V	V	V	mA
60HF(R)	10	100	200	200	15
	20	200	300	300	
	40	400	500	500	
	60	600	720	725	9
	80	800	960	950	
	100	1000	1200	1150	
	120	1200	1440	1350	
	140	1400	1650	1550	4.5
160	1600	1900	1750		

2). Forward Conduction

Parameters		60HF(R)		Unit	Conditions		
		10 to 120	140 to 160				
$I_{F(AV)}$	Max. average forward current @ Case temperature	60	60	A	180° conduction, half sine wave		
		140	110	°C			
$I_{F(RMS)}$	Max. RMS forward current	110		A	t = 10ms	No voltage reappplied	Sinusoidal half wave, Initial $T_J = T_J \text{ max.}$
I_{FSM}	Max. peak, one-cycle forward, non-repetitive surge current	1200			t = 8.3ms	100% V_{RRM} reappplied	
		1250			t = 10ms		
		1000			t = 8.3ms		
I^2t	Maximum I^2t for fusing	1050		A ² s	t = 10ms	No voltage reappplied	
		7100			t = 8.3ms		
		6450		t = 10ms	100% V_{RRM} reappplied		
		5000		t = 8.3ms			
$I^2\sqrt{t}$	Maximum $I^2\sqrt{t}$ for fusing	71000		A ² √s	t = 0.1 to 10ms, no voltage reappplied		
$V_{F(TO)}$	Low level value of threshold voltage	0.79		V	$T_J = T_J \text{ max.}$		
$V_{F(TO)}$	High level value of threshold voltage	1.00					
r_f	Low level value of forward slope resistance	2.33		mΩ	$T_J = T_J \text{ max.}$		
r_f	High level value of forward slope resistance	1.53					
V_{FM}	Max. forward voltage drop	1.30	1.46	V	$I_{pk} = 190A, T_J = 25^\circ C, t_p = 400 \mu s$ rectangular wave		
T_J	Max. junction operating temperature range			°C			
T_{stg}	Max. storage temperature range	-65 to 180	-65 to 150				
R_{thJC}	Max. thermal resistance, junction to case	0.45		K/W	DC operation		
R_{thCS}	Max. thermal resistance, case to heatsink	0.25			Mounting surface, smooth, flat and greased		
T	Max. allowed mounting torque ± 10%	3.4 ^{+0-10%}		Nm	Lubricated threads		
		30		lbf · in			
		2.3 ^{+0-10%}		Nm	Not lubricated threads		
		20		lbf · in			
wt	Approximate weight	17 (0.6)		g (oz)	unleaded device		
	Case style	DO-5			See Outline Table		

ΔR_{thJC} Conduction

(The following table shows the increment of thermal resistance R_{thJC} when devices operate at different conduction angles than DC)

Conduction angle	Sinusoidal conduction	Rectangular conduction	Units	Conditions
180°	0.08	0.06	K/W	$T_J = T_J \text{ max.}$
120°	0.10	0.11		
90°	0.13	0.14		
60°	0.19	0.20		
30°	0.30	0.30		

PERFORMANCE CURVES FIGURE

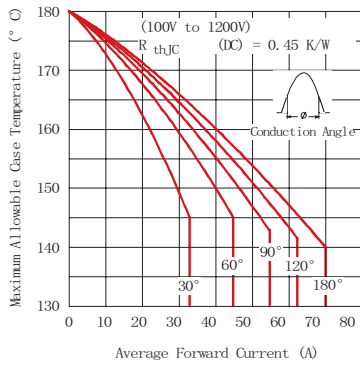


Fig. 1 - Current Ratings Characteristics

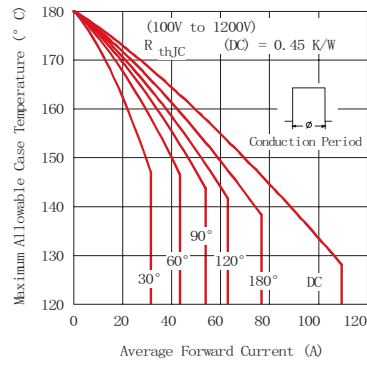


Fig. 2 - Current Ratings Characteristics

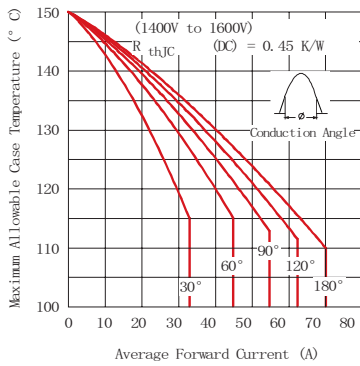


Fig. 3 - Current Ratings Characteristics

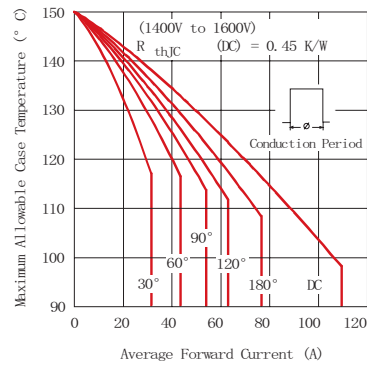


Fig. 4 - Current Ratings Characteristics

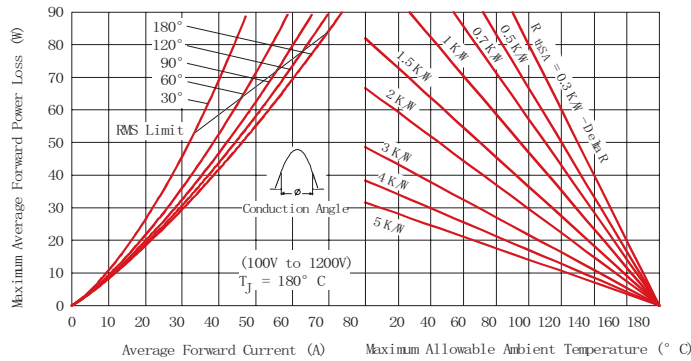


Fig. 5 - Forward Power Loss Characteristics

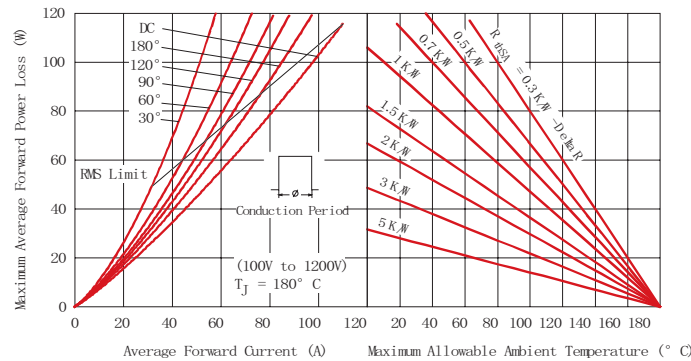


Fig. 6 - Forward Power Loss Characteristics

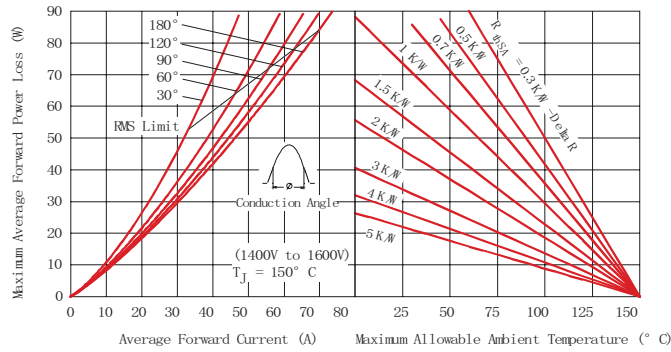


Fig. 7 - Forward Power Loss Characteristics

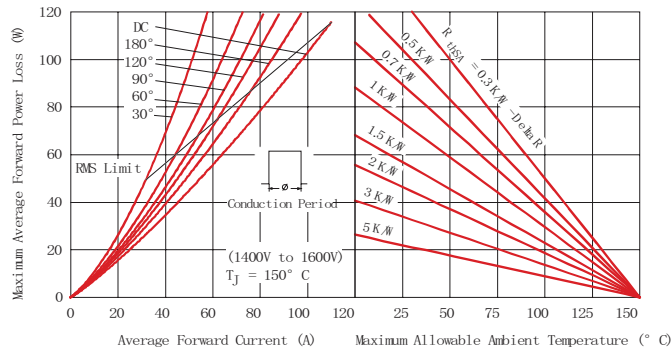


Fig. 8 - Forward Power Loss Characteristics

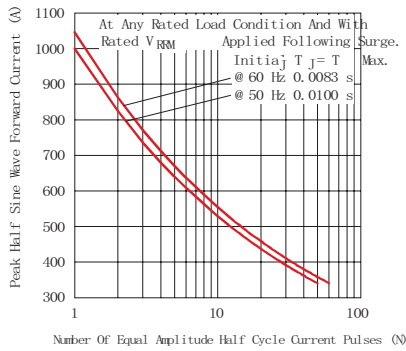


Fig. 9 - Maximum Non-Repetitive Surge Current

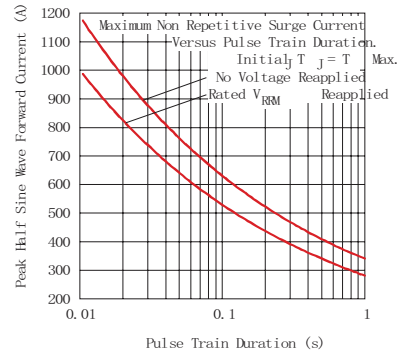


Fig. 10 - Maximum Non-Repetitive Surge Current

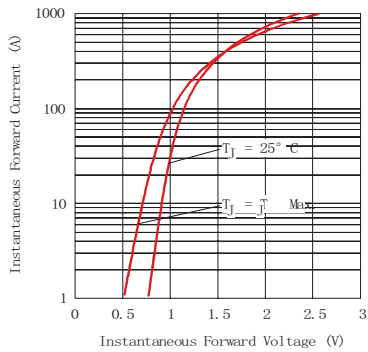


Fig. 11 - Forward Voltage Drop Characteristics

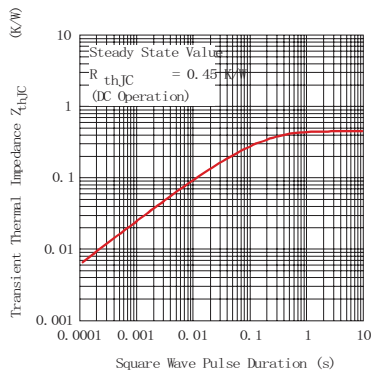


Fig. 12 - Thermal Impedance Z_{thJC} Characteristics

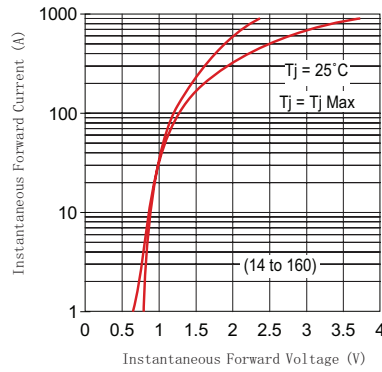
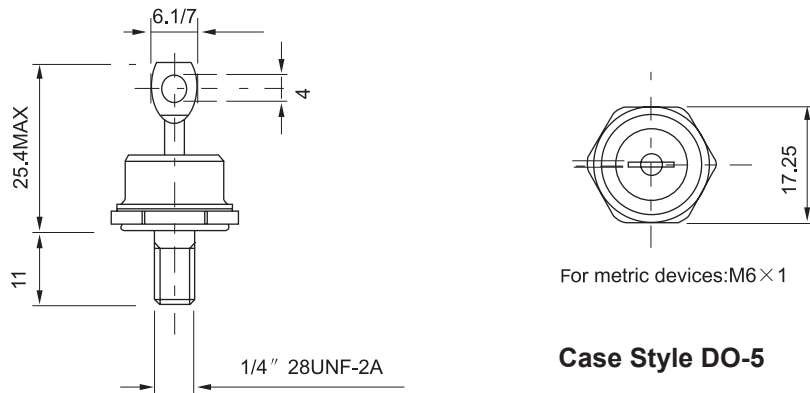


Fig. 13 - Forward Voltage Drop Characteristics

OUTLINE



For metric devices: M6 × 1

Case Style DO-5

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