

INTERNATIONAL RECTIFIER



25AC...A SERIES

25 Amp RMS TRIACS

Description

This series of medium power triacs is intended for general purpose phase control.

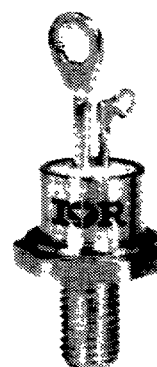
Applications include lamp dimmers, battery chargers and other industrial equipments.

Features

- High surge capability
- Available up to 1200 V
- High dynamic characteristics
- 1/4" stud base (TO-48 package)
- Glass passivation

Major ratings and characteristics

Parameter	25AC...A Series	Units
$I_{T(RMS)}$	25	A
@ T_c	82	°C
I_{TSM} @ 50Hz	200	A
@ 60Hz	209	A
I^2t @ 50Hz	200	A ² s
@ 60Hz	182	A ² s
V_{DRM}, V_{RRM}	400 to 1200	V
T_J	-40 to 125	°C





ELECTRICAL SPECIFICATIONS

Voltage ratings

Type number	Voltage Code	$V_{RRM} = V_{DRM}$ max. peak reverse and off-state voltage gate open circuit $T_J = T_J \text{ Max.}$	V_{RRM} maximum non-repetitive peak reverse voltage $T_J = T_J \text{ Max.}$	I_{DM} max peak off-state current @ rated V_{RRM} $T_J = T_J \text{ Max.}$
		(V)	(V)	(mA)
25AC40A	40	400	500	10
25AC60A	60	600	700	10
25AC80A	80	800	900	10
25AC100A	100	1000	1100	10
25AC120A	120	1200	1300	10

On-state Conduction

Parameters	Value	Units	Conditions
$I_{T(RMS)}$ Maximum RMS on-state current @ T_C	25 82	A °C	180° Sine Conduction angle
I_{TSM} Maximum peak, one half cycle non-repetitive surge current Sinusoidal half wave Initial $T_J = T_J 125^\circ\text{C}$ (either direction)	200	A	$t = 10\text{ms}$ 100% V_{RRM} reapplied
	209	A	$t = 8.3\text{ms}$
	237	A	$t = 10\text{ms}$ No voltage reapplied
	249	A	$t = 8.3\text{ms}$
I^2t Maximum I^2t for fusing	200	A^2s	$t = 10\text{ms}$ 100% V_{RRM} reapplied
	182	A^2s	$t = 8.3\text{ms}$
	282	A^2s	$t = 10\text{ms}$ No voltage reapplied
	258	A^2s	$t = 8.3\text{ms}$
$I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing	2000	$\text{A}^2\sqrt{\text{s}}$	I^2t for time $t_x = I^2\sqrt{t} \times \sqrt{t_x}$; $0.1 \leq t_x \leq 10\text{ms}$
$V_{T(TO)}$ High-level of threshold voltage	0.93	V	$T_J = 125^\circ\text{C}$, $(\pi \times I_{(AV)}) < I < 20 \times \pi \times I_{(AV)}$
$V_{T(TO)2}$ Low-level of threshold voltage	1.14	V	$T_J = 125^\circ\text{C}$, $(16.7\% \times \pi \times I_{(AV)}) < I < \pi \times I_{(AV)}$
$r_{\theta 1}$ High-level of on-state slope resistance	26.0	$\text{m}\Omega$	$T_J = 125^\circ\text{C}$, $(\pi \times I_{(AV)}) < I < 20 \times \pi \times I_{(AV)}$
$r_{\theta 2}$ Low-level of on-state slope resistance	22.5	$\text{m}\Omega$	$T_J = 125^\circ\text{C}$, $(16.7\% \times \pi \times I_{(AV)}) < I < \pi \times I_{(AV)}$
V_{TM} Maximum on-state voltage	1.95	V	$T_J = 25^\circ\text{C}$, $I_{TM} = 35\text{A}_{pk}$ either direction
I_H Maximum holding current	100	mA	$T_J = 25^\circ\text{C}$, Anode supply 12V
I_L Maximum latching current	200	mA	$T_J = 25^\circ\text{C}$, Anode supply 12V

Off-state Conduction

dV/dt Max. critical rate of rise of post commutation voltage	10	V/ μs	$T_J = 125^\circ\text{C}$, rated V_{RRM} , linear, either direction
dV/dt Max. critical rate of rise of post on-state voltage	200	V/ μs	$T_J = 125^\circ\text{C}$, linear to 67% rated V_{RRM}
I_{DM} Max. peak off-state current	10	mA	$T_J = 125^\circ\text{C}$, rated V_{RRM} , either direction

Switching

dI/dt Max. non-repetitive rate of rise of turned-on current	100	A/ μs	$T_J = 125^\circ\text{C}$, $V_{DRM} = \text{rated } V_{RRM}$, $t_p > 10\mu\text{s}$ $I_{TM} = 100\text{A}$ gate pulse = 20V
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Triggering

Parameters	Value	Units	Conditions
P_{GM} Maximum peak gate power	8	W	$t_p = 5 \text{ ms}$
$P_{G(AV)}$ Maximum average gate power	2	W	$t_p = 2 \text{ ms}$
I_{GM} Maximum peak positive or negative gate current	1.5	A	
V_{GM} Maximum peak positive or negative gate voltage	10	V	
I_{GT} Maximum DC gate current required to trigger	150	mA	$T_J = 25^\circ\text{C}$
	300	mA	$T_J = -40^\circ\text{C}$
	75	mA	$T_J = 125^\circ\text{C}$
V_{GT} Maximum DC gate voltage required to trigger	2.5	V	$T_J = 25^\circ\text{C}$
	4.0	V	$T_J = -40^\circ\text{C}$
	1.5	V	$T_J = 125^\circ\text{C}$
V_{GD} Maximum required gate	0.2	V	$T_J = 125^\circ\text{C}$ Rated V_{RRM} applied

Thermal and Mechanical Specifications

Parameters	Value	Units	Conditions
T_J Max. operating temperature range	-40 to 125	$^\circ\text{C}$	
T_{stg} Max. storage temperature range	-40 to 125	$^\circ\text{C}$	
R_{thJC} Max. thermal resistance junction to case	1.15	K/W	DC operation
R_{thCS} Max. thermal resistance, case to heatsink	0.35	K/W	Mounting surface, smooth, flat and greased
wt Approximate weight	14	g	
T Mounting Torque $\pm 10\%$	2.3	Nm	Lubricated threads
Case style	TO-208 AA (TO-48)		

ORDERING INFORMATION TABLE

Device Code			
25	AC	120	A
1	2	3	4
1	$I_{T(RMS)}$		
2	Basic Part number		
3	Voltage code (See Voltage ratings table)		
4	Basic Part number		

OUTLINE TABLE

	Conforms to JEDEC TO-208 AA (TO-48) All dimensions in millimetres (inches)
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Fig. 1 - CURRENT RATINGS CHARACTERISTICS

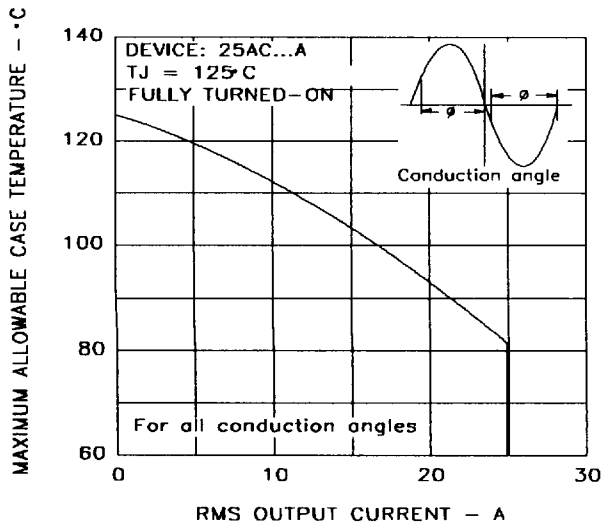


Fig. 2 - ON-STATE POWER LOSS CHARACTERISTICS

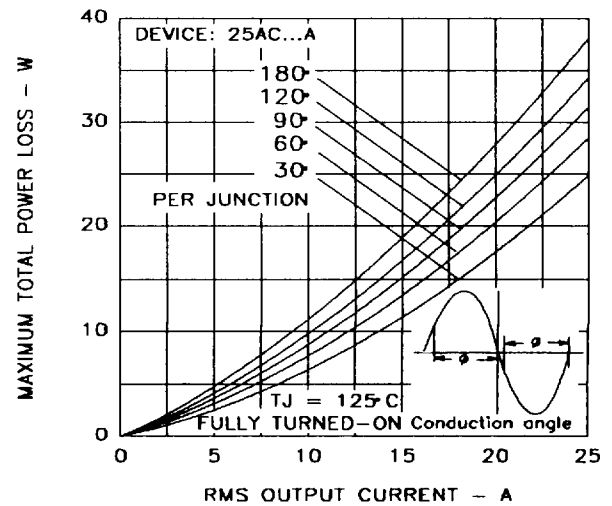


Fig. 3 - MAXIMUM NON-REPETITIVE SURGE CURRENT

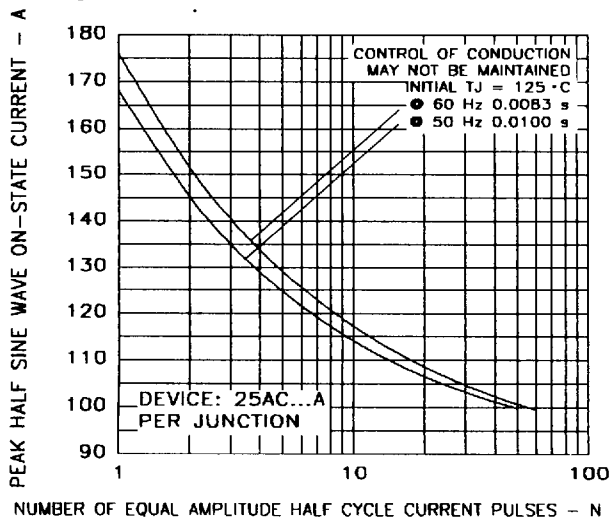


Fig. 4 - MAXIMUM NON-REPETITIVE SURGE CURRENT

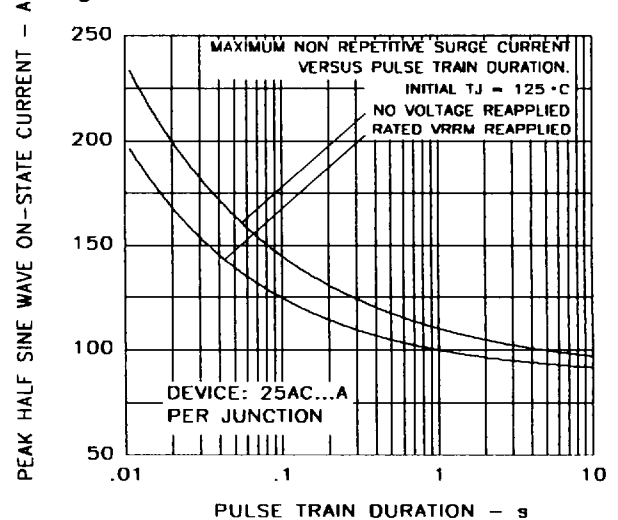


Fig. 5 - ON-STATE VOLTAGE DROP CHARACTERISTICS

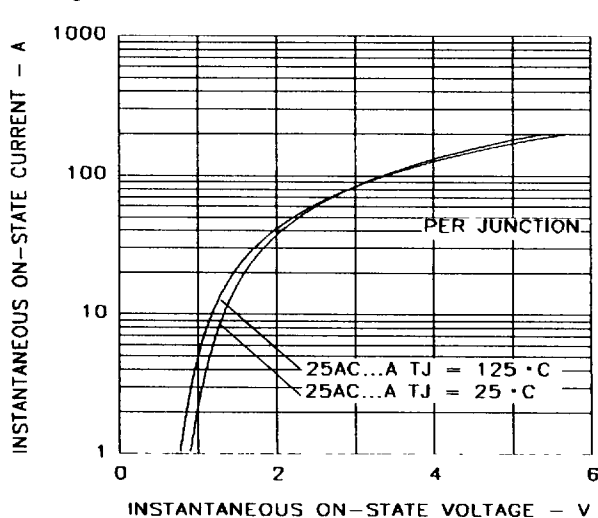
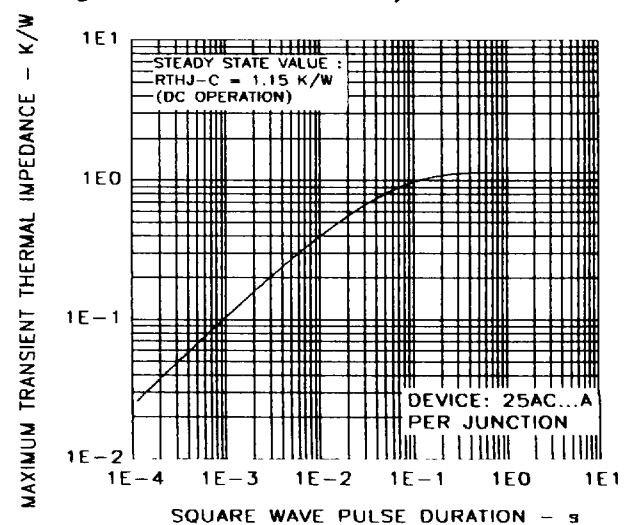
Fig. 6 - THERMAL IMPEDANCE Z_{thjc} CHARACTERISTICS

Fig. 7 - GATE CHARACTERISTICS (All quadrants)

