



SU FUTURO EN TECNOLOGIA

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Circuitos Integrados \* Semiconductores \* Repuestos Industriales \* Servicio Técnico \* Instrumentación  
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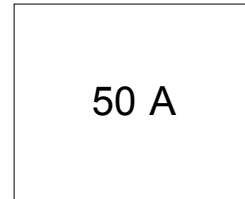
Carlos Erazo  
Gerente General

### MEDIUM POWER THYRISTORS

### Stud Version

#### Features

- High current rating
- Excellent dynamic characteristics
- $dv/dt = 1000V/\mu s$  option
- Superior surge capabilities
- Standard package
- Metric threads version available
- Types up to  $1600V V_{DRM}/V_{RRM}$



#### Typical Applications

- Phase control applications in converters
- Lighting circuits
- Battery charges
- Regulated power supplies and temperature and speed control circuit
- Can be supplied to meet stringent military, aerospace and other high-reliability requirements

#### Major Ratings and Characteristics

Parameters	50RIA		Units
	10 to 120	140 to 160	
$I_{T(AV)}$	50	50	A
@ $T_C$	94	90	$^{\circ}C$
$I_{T(RMS)}$	80	80	A
$I_{TSM}$			
@ 50Hz	1430	1200	A
@ 60Hz	1490	1257	A
$I^2t$			
@ 50Hz	10.18	7.21	$KA^2s$
@ 60Hz	9.30	6.58	$KA^2s$
$V_{DRM}/V_{RRM}$	100 to 1200	1400 to 1600	V
$t_q$ typical	110		$\mu s$
$T_J$	- 40 to 125		$^{\circ}C$



## 50RIA Series

Bulletin I2401 rev. A 07/00

International  
IRF Rectifier

### E E T R I A S P E C I F I C A T I O N S

#### Voltage Ratings

Type number	Voltage Code	$V_{DRM}/V_{RRM}$ , max. repetitive peak and off-state voltage (1) V	$V_{RSM}$ , maximum non-repetitive peak voltage (2) V	$I_{DRM}/I_{RRM}$ max. @ $T_J = T_J$ max. mA
50RIA	10	100	150	15
	20	200	300	
	40	400	500	
	60	600	700	
	80	800	900	
	100	1000	1100	
	120	1200	1300	
	140	1400	1500	
	160	1600	1700	

(1) Units may be broken over non-repetitively in the off-state direction without damage, if  $di/dt$  does not exceed  $20A/\mu s$

(2) For voltage pulses with  $t_p \leq 5ms$

#### On-state Conduction

Parameter	50RIA		Units	Conditions		
	10 to 120	140 to 160				
$I_{T(AV)}$ Max. average on-state current @ Case temperature	50 94	50 90	A °C	180° sinusoidal conduction		
$I_{T(RMS)}$ Max. RMS on-state current	80	80	A			
$I_{TSM}$ Max. peak, one-cycle non-repetitive surge current	1430 1490 1200 1255	1200 1257 1010 1057	A	t = 10ms t = 8.3ms t = 10ms t = 8.3ms	No voltage reapplied 100% $V_{RRM}$ reapplied	Sinusoidal half wave, Initial $T_J = T_J$ max.
$I^2t$ Maximum $I^2t$ for fusing	10.18 9.30 7.20 6.56	7.21 6.58 5.10 4.65	$KA^2s$	t = 10ms t = 8.3ms t = 10ms t = 8.3ms	No voltage reapplied 100% $V_{RRM}$ reapplied	
$I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing	101.8	72.1	$KA^2\sqrt{s}$	t = 0.1 to 10ms, no voltage reapplied, $T_J = T_J$ max.		
$V_{T(TO)1}$ Low level value of threshold voltage	0.94	1.02	V	$(16.7\% \times \pi \times I_{T(AV)} < I < \pi \times I_{T(AV)})$ , $T_J = T_J$ max.		
$V_{T(TO)2}$ High level value of threshold voltage	1.08	1.17		$(\pi \times I_{T(AV)} < I < 20 \times \pi \times I_{T(AV)})$ , $T_J = T_J$ max.		
$r_{T1}$ Low level value of on-state slope resistance	4.08	4.78	$m\Omega$	$(16.7\% \times \pi \times I_{T(AV)} < I < \pi \times I_{T(AV)})$ , $T_J = T_J$ max.		
$r_{T2}$ High level value of on-state slope resistance	3.34	3.97		$(\pi \times I_{T(AV)} < I < 20 \times \pi \times I_{T(AV)})$ , $T_J = T_J$ max.		
$V_{TM}$ Max. on-state voltage	1.60	1.78	V	$I_{pk} = 157 A$ , $T_J = 25^\circ C$		
$I_H$ Maximum holding current	200		mA	$T_J = 25^\circ C$ . Anode supply 22V, resistive load, Initial $I_T = 2A$		
$I_L$ Latching current	400			Anode supply 6V, resistive load		

