

### STANDARD RECOVERY DIODES

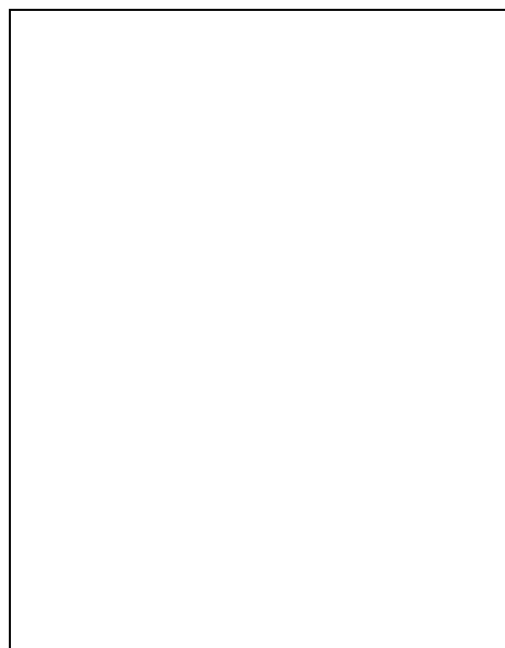
Stud Version

#### Features

- High surge current capability
- Designed for a wide range of applications
- Stud cathode and stud anode version
- Leaded version available
- Types up to 2000V  $V_{RRM}$

#### Typical Applications

- Battery charges
- Converters
- Power supplies
- Machine tool controls
- Welding



#### Major Ratings and Characteristics

Parameters		INRA150(R)..	Units
$I_{F(AV)}$		150	A
	@ $T_c$	110	°C
$I_{F(RSM)}$		235	A
$I_{FSM}$	@ 50Hz	3300	A
	@ 60Hz	3600	A
$I^2 t$	@ 50Hz	64000	A <sup>2</sup> s
	@ 60Hz	58000	A <sup>2</sup> s
$V_{RRM}$	range	100 to 600	V
$T_J$	range	- 40 to 150	°C

## ELECTRICAL SPECIFICATIONS

### Voltage Ratings

Type number	Voltage Code	$V_{RRM}$ , maximum repetitive peak reverse voltage	$V_{RSM}$ , maximum non-repetitive peak reverse voltage	$I_{RRM}$ max. @ $T_J = T_J$ max. mA
		V	V	
INRA150(R)..	04	400	500	5.00
	08	800	900	
	12	1200	1300	
	14	1400	1500	
	16	1600	1700	
	18	1800	1900	
	20	2000	2100	

### Forward Conduction

Parameter	INRA150(R)..	Units	Conditions		
$I_{F(AV)}$ Max. average forward current @ Case temperature	150	A	180° conduction, half sine wave		
	110	°C			
$I_{F(RMS)}$ Max. RMS forward current	235	A			
$I_{FSM}$ , Maximum peak, one-cycle forward, non-repetitive surge current	3300	A	t = 10ms	No voltage reappplied	Sinusoidal half wave, Initial $T_J = T_J$ max.
	3600		t = 8.3ms		
	3000		t = 10ms	100% $V_{RRM}$ reappplied	
	3140		t = 8.3ms		
$I^2 t$ Maximum $I^2 t$ for fusing	64000	$A^2 s$	t = 10ms	No voltage reappplied	
	58000		t = 8.3ms		
	45000		t = 10ms	100% $V_{RRM}$ reappplied	
	41000		t = 8.3ms		
$I^2 \sqrt{t}$ Maximum $I^2 \sqrt{t}$ for fusing	640000	$A^2 \sqrt{s}$	t = 0.1 to 10ms, no voltage reappplied		
$V_{F(TO)1}$ Low level value of threshold voltage	0.67	V	$T_J = T_J$ max.		
$V_{F(TO)2}$ High level value of threshold voltage	0.83		$T_J = T_J$ max.		
$r_{f1}$ Low level value of forward slope resistance	1.42	m	$T_J = T_J$ max.		
$r_{f2}$ High level value of forward slope resistance	0.91		$T_J = T_J$ max.		
$V_{FM}$ Maximum on-state or forward	1.30	V	I <sub>pk</sub> = 480A, $T_J = 25^\circ C$ , $t_p = 10ms$ sinusoidal wave		

## Thermal and Mechanical Specifications

Parameter	INRA150(R)..	Units	Conditions
T <sub>J</sub> Max. junction operating temperature range	-40 to 150	°C	Junction to case
T <sub>stg</sub> Max. storage temperature range	-40 to 170	°C	
R <sub>thJC</sub> Max. thermal resistance, junction to case	0.25	K/W	DC operation
R <sub>thSC</sub> Max. thermal resistance, case to heatsink	0.10		Mounting surface, smooth, flat and greased
T Max. allowed mounting torque +0 -20%	14.1	Nm	Not lubricated threads
	125	lbf.in	
	17.0	Nm	Lubricated threads
	150	lbf.in	
wt Approximate weight	11.3 (100)	g (oz)	
Case style	DO-5		See Outline Table

## Ordering Information Table

Device Code					
INR	A	150	R	120	M
1	2	3	4	5	6
1	INR = Company				
2	A = Standard device				
3	Current rating: Code = IF(AV)				
4	None = Stud Normal Polarity (Cathode to Stud)				
	R = Stud Reverse Polarity (Anode to Stud)				
5	Voltage code: Code x 10 = VRRM (See Voltage Ratings table)				
6	None = Stud base DO-205AC (DO-30) 1/2-20UNF-2A				
	M = Stud base DO-205AC (DO-30) M12 X 1.5				

### Outline

