Bulletin I27125 rev. A 04/99

International
IOR Rectifier

P100 SERIES

PASSIVATED ASSEMBLED CIRCUIT ELEMENTS

Features

- Glass passivated junctions for greater reliability
- Electrically isolated base plate
- Available up to 1200 V_{RRM}, V_{DRM}
- High dynamic characteristics
- Wide choice of circuit configurations
- Simplified mechanical design and assembly
- UL E78996 approved

Description

The P100 series of Integrated Power Circuits consists of power thyristors and power diodes configured in a single package. With its isolating base plate, mechanical designs are greatly simplified giving advantages of cost reduction and reduced size.
Applications include power supplies, control circuits and battery chargers.

Major Ratings and Characteristics

Parameters		P100	Units
I_D		25	A
	@ T_C	85	°C
I_{FSM}	@50Hz	357	A
	@ 60Hz	375	A
I^2t	@50Hz	637	A^2s
	@ 60Hz	580	A^2s
$I^2\sqrt{t}$		6365	$A^2\sqrt{s}$
V_{RRM}		400 to 1200	V
V_{INS}		2500	V
T_J		- 40 to 125	°C

ELECTRICAL SPECIFICATIONS

Voltage Ratings

Type number	V_{RRM} maximum repetitive peak reverse voltage V	V_{RSM} maximum non-repetitive peak reverse voltage V	V_{DRM} maximum repetitive peak off-state voltage V	I_{RRM} max. @ T_J max. mA
P101, P121, P131	400	500	400	10
P102, P122, P132	600	700	600	
P103, P123, P133	800	900	800	
P104, P124, P134	1000	1100	1000	
P105, P125, P135	1200	1300	1200	

On-state Conduction

	Parameter	P100	Units	Conditions		
I_D	Maximum DC output current	25	A	@ T_C = 85°C, full bridge		
I_{TSM}	Max. peak one-cycle	357	A	t = 10ms	No voltage	Sinusoidal half wave, Initial $T_J = T_J$ max.
I_{FSM}	non-repetitive on-state	375		t = 8.3ms	reapplied	
	or forward current	300		t = 10ms	100% V_{RRM}	
		315		t = 8.3ms	reapplied	
I^2t	Maximum I^2t for fusing	637	A^2s	t = 10ms	No voltage	
		580		t = 8.3ms	reapplied	
		450		t = 10ms	100% V_{RRM}	
		410		t = 8.3ms	reapplied	
$I^2\sqrt{t}$	Maximum $I^2\sqrt{t}$ for fusing	6365	$A^2\sqrt{s}$	t = 0.1 to 10ms, no voltage reapplied I^2t for time tx = $I^2\sqrt{t} \cdot \sqrt{tx}$		
$V_{T(TO)}$	Max. value of threshold voltage	0.82	V	T_J = 125°C		
r_{t1}	Max. level value of on-state slope resistance	12	mΩ	T_J = 125°C, Av. power = $V_{T(TO)} * I_{T(AV)} + r_t + (I_{T(RMS)})^2$		
V_{TM} V_{FM}	Max. peak on-state or forward voltage drop	1.35	V	T_J = 25°C, $I_{TM} = \pi \times I_{T(AV)}$		
di/dt	Maximum non repetitive rate of rise of turned on current	200	A/µs	T_J = 125°C from 0.67 V_{DRM} $I_{TM} = \pi \times I_{T(AV)}$, I_g = 500mA, tr < 0.5µs, tp > 6µs		
I_H	Maximum holding current	130	mA	T_J = 25°C anode supply = 6V, resistive load, gate open		
I_L	Maximum latching current	250	mA	T_J = 25°C anode supply = 6V, resistive load		