

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_b	25	A
@ T_c	85	°C
I_{FSM}	357	A
@ 50Hz	375	A
@ 60Hz	637	A ² s
I^2t	580	A ² s
@ 50Hz	6365	A ² √s
@ 60Hz		
$I^2\sqrt{t}$		
V _{RRM}	400 to 1200	V
V _{INS}	2500	V
T _J	- 40 to 125	°C

P100 Series

Bulletin I27125 rev. A 04/99

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