Ruttonsha International Rectifier Ltd.

HIGH POWER THYRISTOR

INVERTER GRADE THYRISTOR

Hockey Puk Version
R-PUK SERIES 3300PR

Type : 3300 PR 120 F

3370A

Features

- Low Switching loss at high frequency.
- 60 µs maximum turn-off time with feedback diode.
- Involute, interdigitate gate

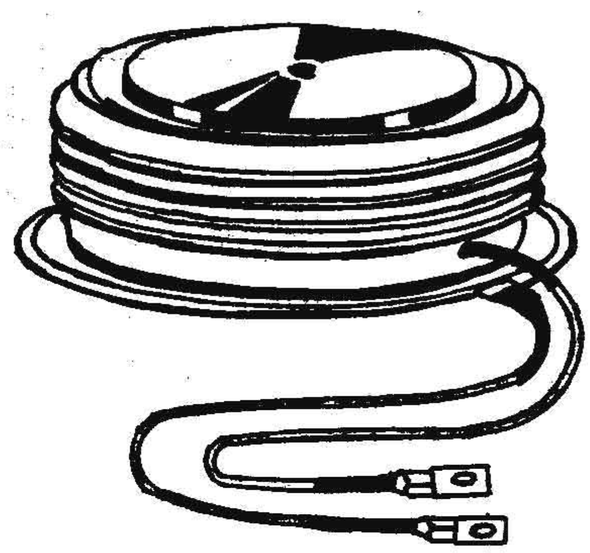
Typical Applications

- Inverters
- Choppers
- Induction heating
- All type of forced-Commutated converters

Major Ratings and Characteristics :-

PARAMETERS		3300PR...F	UNITS
$I_{T(AV)}$		3370	A
	@T_{hs}	55	°C
$I_{T(RMS)}$		5290	A
	@T_{hs}	55	°C
I_{TSM}	@50Hz	43900	A
I^2t	@50Hz	9640	KA^2s
V_{DRM}	/V_{RRM}	UP TO 1200	V
T_q	typical	15 to 25	µs
T_J		- 40 TO 125	°C

3300 PR (R - PUK)



Type : 3300PR 120 F

Electrical Specifications

Voltage Ratings

Type Number	Voltage Code	V_{DRM}/V_{RRM}, max repetitive peak voltage V	V_{RSM}, maximum non-repetitive peak voltage V	I_{DRM}/I_{RRM} max. mA 125°c
3300PR..F	120	1200	1300	300

On-state Conduction

	Parameter	3300 PR...F	Units	Conditions
$I_{T(AV)}$	Max. average on-state current @ Heatsink temperature	3370 55	A °C	180° conduction, half sine wave double side cooled
$I_{T(RMS)}$	Max RMS on-state current	5290	A	DC @55°C heatsink temperature double side cooled
$V_{T(TO)}$	Value of threshold voltage	1.35	V	Tvj = Tvj max.
r_t	Value of on-state slope resistance	0.064	mΩ	Tvj = Tvj max.
I_{RM}	Pak reverse recovery current	Max. 300	A	Tvj = Tvj max.iTM=4000A -diT/dt=60A/µs, VR=50 V tp=1000 µs
V_{TM}	Max. on-state voltage	1.54	V	I_{TM}=4000A, T_J=T_J max.

Switching

	Parameter	3300 PR...F	Units	Conditions
di/dt	Max. Repetitive rate of rise of turned-on current	100	A/µs	T_J=T_J max.
t_d	Typical delay time max.	1.5	µs	V_D=67%, V_{DRM} I_{TM} =1000A,di/dt=60A/µs I_{FG}=2A tr ≤ 0.5 µs T_J = 25 °C
t_q	Typical turn-off time	15 to 25	µs	Tvj = Tvj max. I_{TM} =4000A, tp=1000 µs vRM = -50 V , v DM = 1000V, V_{dr} =33% V_{DRM} dv/dt =200V/µs, -diT/dt = 60 A/µs

Blocking

	Parameter	3300 PR...F	Units	Conditions
dv/dt	Min. critical rate of rise of off-state voltage	500	V/µs	T_J = T_J max. linear to 80% rated V_{DRM}
I_{RRM} I_{DRM}	Max. peak reverse and off-state leakage current	300	mA	T_J = T_J max., rated V_{DRM}/V_{RRM} applied

HIGH POWER THYRISTOR

Type : 3300PR 120 F

Triggering

	Parameter	3300 PR...F	Units	Conditions
		TYP.		
I_{GT}	Max. DC gate current required to trigger	200	mA	T_J = 25°C, V_D = 10 V dc I_T =3A
V_{GT}	Max. DC gate voltage required to trigger	3.0	V	T_J = 25°C, V_D = 10 V dc I_T =3A

Thermal and Mechanical Specifications

	Parameter	3300 PR...F	Units	Conditions
T_J	Max.operating temperature	125	°C	
T_{stg}	Max.storage temperature range	- 40 to +125	°C	
$R_{thJ\text{-}hs}$	Max. thermal resistance, junction to heat sink	0.011	°C/W	DC operation double side cooled
F	Mounting force, ±10%	43.0	KN	
	Case style	(R -PUK)		

Outline Table