Technical Data :

R3968FC28M - Power Thyristor

2800 V_{DRM};

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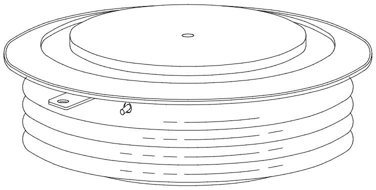
HIGH POWER THYRISTOR FOR INVERTER APPLICATIONS

Features:

- . All Diffused Structure
- . Involute Amplifying Gate Configuration
- . Blocking capabilty up to 2800 volts
- . Guaranteed Maximum Turn-Off Time
- . High dV/dt Capability
- . Pressure Assembled Device



ELECTRICAL CHARACTERISTICS AND RATINGS

Blocking - Off State

Device Type	V_{RRM} (1)	V_{DRM} (1)	V_{RSM} (1)
R3968FC28M	2800	2800	2900

V_{RRM} = Repetitive peak reverse voltage

V_{DRM} = Repetitive peak off state voltage

V_{RSM} = Non repetitive peak reverse voltage (2)

Repetitive peak reverse leakage and off state leakage	I_{RRM} / I_{DRM}	200 mA (3)
Critical rate of voltage rise	dV/dt (4)	200 V/µsec

Notes:
All ratings are specified for Tj=25 °C unless otherwise stated.
(1) All voltage ratings are specified for an applied 50Hz/60zHz sinusoidal waveform over the temperature range -40 to +125 °C.
(2) 10 msec. max. pulse width
(3) Maximum value for Tj = 125 °C.
(4) Minimum value for linear and exponential waveshape to 80% rated V_{DRM}. Gate open. Tj = 125 °C.
(5) Non-repetitive value.
(6) The value of di/dt is established in accordance with EIA/NIMA Standard RS-397, Section 5-2-2-6. The value defined would be in addition to that obtained from a snubber circuit, comprising a 0.2 µF capacitor and 20 ohms resistance in parallel with the thristor under test.

Conducting - on state

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Average value of on-state current	$I_{T(AV)}$		4001		A	Sinewave,180° conduction,T_S=55°C
RMS value of on-state current	I_{TRMS}		7988		A	Nominal value
Peak one cPSTCle surge (non repetitive) current	I_{TSM}		66000		A	10.0 msec (50Hz), sinusoidal waveshape, 180° conduction, T_j = 125 °C
I square t	I^2t		$21.7\text{x}10^6$		A^2s	10.0 msec
Latching current	I_L		1000		mA	V_D = 24 V; R_L= 12 ohms
Holding current	I_H		500		mA	$V_{D=}$ 24 V; I = 2.5 A
Peak on-state voltage	V_{TM}		2.45		V	I_{TM} = 6000 A; Tj = 125 °C
Critical rate of rise of on-state current (5, 6)	di/dt		1000		A/µs	Switching from $V_{DRM} \leq 1000$ V, non-repetitive
Critical rate of rise of on-state current (6)	di/dt		500		A/µs	Switching from $V_{DRM} \leq 1000$ V

ELECTRICAL CHARACTERISTICS AND RATINGS R3968FC28M- Power Thyristor

Gating

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Peak gate power dissipation	P_{GM}		200		W	t_p = 40 us
Average gate power dissipation	$P_{G(AV)}$		5		W	
Peak gate current	I_{GM}		20		A	
Gate current required to trigger all units	I_{GT}		300 200 125		mA mA mA	V_D = 6 V;R_L = 3 ohms;T_j = -40 ^oC V_D = 6 V;R_L = 3 ohms;T_j = +25 ^oC V_D = 6 V;R_L = 3 ohms;T_j = +125^oC
Gate voltage required to trigger all units	V_{GT}	 0.30	5 4		V V V	V_D = 6 V;R_L = 3 ohms;T_j = -40 ^oC V_D = 6 V;R_L = 3 ohms;T_j = 0-125^oC V_D = Rated V_{DRM}; R_L = 1000 ohms; T_j = + 125 ^oC
Peak negative voltage	V_{GRM}		20		V	

Dynamic

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Delay time	t_d	0.8	2.0		µs	I_{TM} = 4000 A; V_D = 67% V_{DRM} Gate pulse: V_G = 30 V; R_G = 10 ohms; t_r = 0.1 µs; t_p = 20 µs
Turn-off time	t_q	50	100	70	µs	I_{TM} =4000 A; di/dt = 60A/µs; $V_R \geq$ 100 V; Re-applied dV/dt = 20 V/µs linear to 67% V_{DRM} ; T_j = 125 ^oC; Duty cPSTCle $\geq$ 0.01%
Reverse recovery current	I_{rr}				A	I_{TM} =4000 A; di/dt = 60 A/µs; $V_R \geq$ -50 V; T_j = 125 ^oC

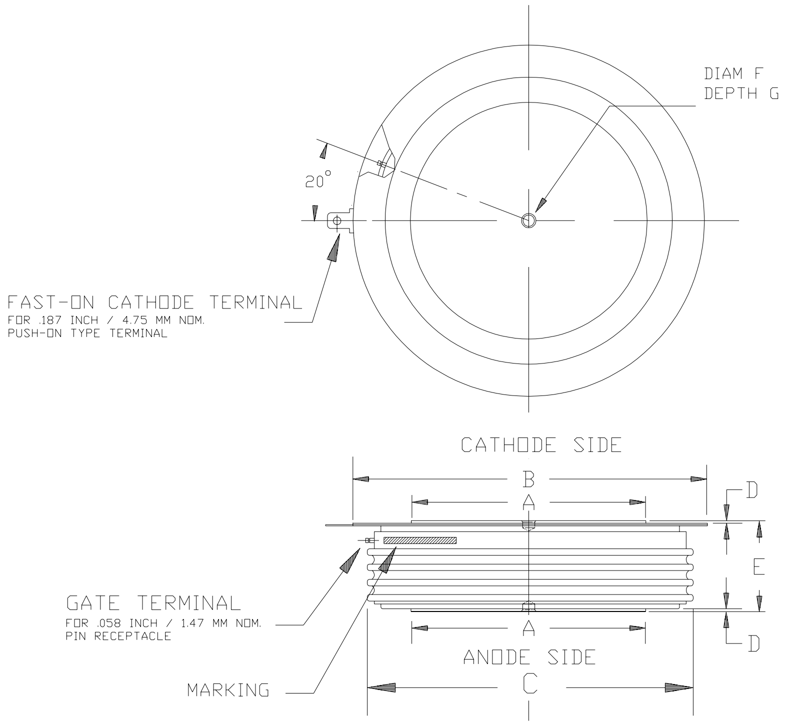
THERMAL AND MECHANICAL CHARACTERISTICS AND RATINGS

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Operating temperature	T_j	-40	+125		^oC	
Storage temperature	T_{stg}	-40	+150		^oC	
Thermal resistance - junction to sink	$R_{\Theta\ (j\text{-}S)}$		0.0065		^oC/W	Double sided cooled
Mounting force	P	81	99		kN	
Weight	W		2.7		Kg.	

* Mounting surfaces smooth, flat and greased

Note : for case outline and dimensions, see case outline drawing in page 3 of this Technical Data

R3968FC28M - Power Thyristor CASE OUTLINE AND DIMENSIONS.



Sym	A	B	C	E
Inches	3.9 3	5.90	5.15	1.37
mm	100	150	131	35±1.0