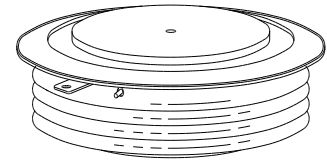


SAF1-T-P-4350-160

HIGH POWER THYRISTOR FOR PHASE CONTROL APPLICATIONS

Features:

- . All Diffused Structure
- . Linear Amplifying Gate Configuration
- . Blocking capability up to 1600 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)
KP4350A	1600	1600	1700

- 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}	450 mA (3)
Critical rate of voltage rise	dV/dt (4)	300 V/μsec

Notes:

All ratings are specified for T_j=25 °C unless otherwise stated.

- (1) All voltage ratings are specified for an applied 50Hz/60Hz sinusoidal waveform over the temperature range -40 to +125 °C.
- (2) 10 msec. max. pulse width
- (3) Maximum value for T_j = 125 °C.
- (4) Minimum value for linear and exponential waveshape to 67% rated V_{DRM}. Gate open. T_j = 125 °C.
- (5) Non-repetitive value.

Conducting - on state

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Average value of on-state current	I _{T(AV)}		4350		A	Sinewave, 180° conduction, T _s =70°C
Peak one cpstcle surge (non repetitive) current	I _{TSM}		48900		A	10.0 msec (50Hz), sinusoidal waveshape, 180° conduction, T _j = 125 °C
I square t	I ² t		11.9x10 ⁶		A ² s	10.0 msec
Latching current	I _L		1000		mA	V _D = 12 V; R _L = 12 ohms
Holding current	I _H		450		mA	V _D = 12 V; I = 2.5 A
Peak on-state voltage	V _{TM}		1.5		V	I _{TM} = 6000 A; Duty cpstcle ≤ 0.01% T _j = 25 °C
Critical rate of rise of on-state current (5)	di/dt		200		A/μs	Switching from V _{DRM} ≤ 1000 V, non-repetitive

ELECTRICAL CHARACTERISTICS AND RATINGS
Gating

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Peak gate power dissipation	P_{GM}		200		W	$t_p = 40 \mu s$
Average gate power dissipation	$P_{G(AV)}$		5		W	
Peak gate current	I_{GM}		15		A	
Gate current required to trigger all units	I_{GT}	30	300 200 125		mA mA mA	$V_D = 12 V; R_L = 6 \text{ ohms}; T_j = -40 \text{ }^\circ\text{C}$ $V_D = 12 V; R_L = 6 \text{ ohms}; T_j = +25 \text{ }^\circ\text{C}$ $V_D = 12 V; R_L = 6 \text{ ohms}; T_j = +125 \text{ }^\circ\text{C}$
Gate voltage required to trigger all units	V_{GT}	0.30	5 3		V V V	$V_D = 12 V; R_L = 6 \text{ ohms}; T_j = -40 \text{ }^\circ\text{C}$ $V_D = 12 V; R_L = 6 \text{ ohms}; T_j = 0-125 \text{ }^\circ\text{C}$ $V_D = \text{Rated } V_{DRM}; R_L = 1000 \text{ ohms}; T_j = +125 \text{ }^\circ\text{C}$
Peak negative voltage	V_{GRM}		15		V	

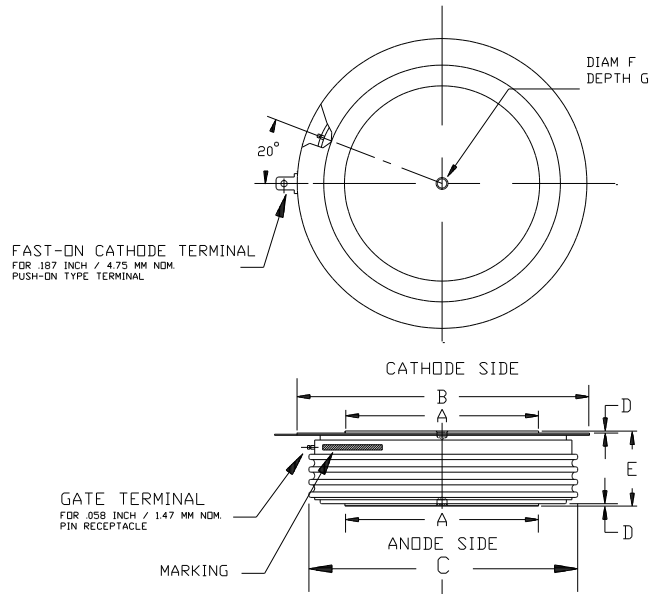
Dynamic

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Delay time	t_d		3.0	2.5	μs	$I_{TM} = 50 \text{ A}; V_D = 1500 \text{ V}$ Gate pulse: $V_G = 20 \text{ V}; R_G = 20 \text{ ohms};$ $t_r = 0.1 \mu s; t_p = 20 \mu s$
Turn-off time (with $V_R = -50 \text{ V}$)	t_q			400	μs	$I_{TM} = 250 \text{ A}; di/dt = 25 \text{ A}/\mu s;$ $V_R \geq -50 \text{ V};$ Re-applied $dV/dt = 30 \text{ V}/\mu s$ linear to 67% $V_{DRM}; V_G = 0;$ $T_j = 125 \text{ }^\circ\text{C};$ Duty cpstcle $\geq 0.01\%$
Reverse recovery charge	Q_{rr}				A	$I_{TM} = 500 \text{ A}; di/dt = 5 \text{ A}/\mu s;$ $V_R \geq -50 \text{ V}, T_j = 25 \text{ }^\circ\text{C};$

THERMAL AND MECHANICAL CHARACTERISTICS AND RATINGS

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Operating temperature	T_j	-40	+125		$^\circ\text{C}$	
Storage temperature	T_{stg}	-40	+150		$^\circ\text{C}$	
Thermal resistance - junction to sink	$R_{\theta(j-s)}$		0.0075		$^\circ\text{C}/\text{W}$	Double sided cooled Single sided cooled
Mounting force	P	98	113		kN	
Weight	W			2.0	Kg.	

CASE OUTLINE AND DIMENSIONS.



Sym	A	B	C	E
Inches	3.93	5.90	5.19	1.37
mm	100	150	132	35±1.0