KP2600-POWER THYRISTOR

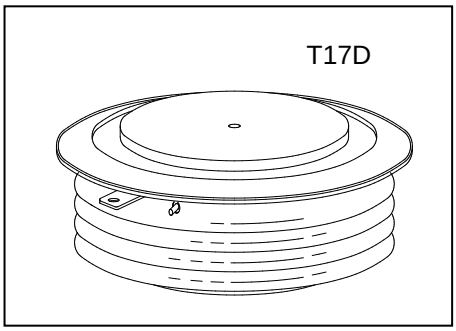
6800-7200 V_{DRM}

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FREE FLOATING TYPE THYRISTOR FOR PHASE CONTROL APPLICATIONS

Features:

. Free-floating silicon technology
. Low on-state and switching losses
. Optimum power handling capability
. Blocking capability up to 7200 volts
. Distributed amplifying gate



ELECTRICAL CHARACTERISTICS AND RATINGS

Blocking - Off State

Device Type	V_{RRM} (1)	V_{DRM} (1)	V_{RSM} (1)
KP2600/68	5900	5900	6800
KP2600/70	6100	6100	7000
KP2600/72	6300	6300	7200

V_{RRM} = Repetitive peak reverse voltage
V_{DRM} = Repetitive peak off state voltage
V_{RSM} = Non repetitive peak reverse voltage (2)

Notes:
(1) All voltage ratings are specified for an applied 50Hz sinusoidal waveform over the temperature range -40 °C to +115 °C.
(2) 10 msec. max. pulse width
(3) Maximum value for Tj = 115 °C.
(4) Minimum value for linear and exponential waveshape to 67% rated V_{DRM}. Gate open. Tj = 115 °C.
(5).The value of di/dt is established in accordance with EIA/NIMA Standard JB/T 8950.2-2013

Repetitive peak reverse leakage and off state leakage	I_{RRM}/I_{DRM}	5 mA 250 mA (3)
Critical rate of voltage rise	dv/dt (4)	2000 V/µ

Conducting - On State

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Average value of on-state current	$I_{T(AV)}$		2600		A	Sinewave,180° conduction,T_c=70°C
RMS value of on-state current	I_{TRMS}		4082		A	Nominal value
Peak one cycle surge (non repetitive) current	I_{TSM}		42000		A	10.0 msec (50Hz), sinusoidal wave-shape, 180° conduction, T_j = 115 °C
I square t	I^2t		$8.82x10^6$		A^2s	10 msec
Latching current	I_L		1000		mA	V_D = 12 V; R_L= 12 ohms
Holding current	I_H		200		mA	V_D = 12 V; I = 2.5 A
Peak on-state voltage	V_{TM}		1.67		V	I_{TM}=1500A;Tj =25°C
Threshold voltage, low-level	V_{TO}		1.17		V	Tj=110°C
Slope resistance, low-level	r_T		0.3		mΩ	1000A to 5000A
Critical rate of rise of on-state current(5)	di/dt		200		A/µs	Tj=115°C; V_D = 0.67 V_{DRM}; f=50Hz; I_{TM}=3000A

Gating

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Peak gate power dissipation	P_{GM}		20		W	
Average gate power dissipation	$P_{G(AV)}$		4		W	
Gate-trigger current	I_{GT}		250		mA	V_D =12 V;R_L = 3 ohms;T_j = +25 °C
Gate- trigger voltage	V_{GT}	0.7	3.0		V	V_D = 12 V;R_L = 3 ohms;T_j = +25 °C
Peak negative voltage	V_{GRM}		10		V	

Dynamic

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Delay time	t_d			3.0	μs	I_{TM}=100A; V_D=67%V_{DRM} V_G=30V; R_G=10ohms; t_r=0.1μs; t_p=20μs
Turn-off time (with V_R = -5 V)	t_q			900	μs	I_{TM} =2000A; di/dt =-10A/μs; V_R =100V; dv/dt=30V/μs ; V_D= 67%V_{DRM} ;Tj=110
Reverse recovery charge	Q_{rr}		6000		μC	I_{TM}=2000A di/dt=-10A/μs; V_R=100V; T_j=110

THERMAL AND MECHANICAL CHARACTERISTICS AND RATINGS

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Operating temperature	T_j	-40	+115		°C	
Storage temperature	T_{stg}	-40	+140		°C	
Thermal resistance - junction to case	$R_{\Theta(j-c)}$		0.0057		°C/W	Double sided cooled
Thermal resistance - case to heatsink	$R_{\Theta(c-s)}$		0.0015		°C/W	Double sided cooled
Mounting force	F	86				

