



HIGH POWER TRIAC**Features:**

- . Enlarged gate structure
- . Same silicon wafer contains two thyristors
- . Blocking capability up to 4500 volts
- . High power capability
- . Full cold pressing encapsulation

TS5D

**ELECTRICAL CHARACTERISTICS AND RATINGS****Blocking-Off State**

Device No.	V_{DRM} (1)	V_{DSM} (1)
KS250/40	4000	4100
KS250/42	4200	4300
KS250/45	4500	4600

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

Repetitive peak reverse leakage and off state leakage	I_{DRM}	5 mA 60 mA (3)
Off - state voltage rise rating	dV/dt (4)	1000 V/sec (min)

Notes:

All ratings are specified for $T_j = 25^\circ\text{C}$ unless otherwise stated.(1) All voltage ratings are specified for an applied 50Hz/60Hz sinusoidal waveform over the temperature range 0 to $+125^\circ\text{C}$

(2) 10 msec. Max. Pulse width

(3) Maximum value for $T_j = 125^\circ\text{C}$.(4) Minimum value for linear and exponential waveshape to 67% rated V_{DRM} . Gate open, $T_j = 125^\circ\text{C}$ (5) The value of di/dt is established in accordance with EIA/NIMA Standard JB/T 8950.2-2013.**Conducting-on state**

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Average value of on-state current	$I_{T(AV)}$		250		A	Sinewave, 180° conduction, $T_c = 70^\circ\text{C}$
RMS value of on-state current	I_{TRMS}		390		A	Nominal value
Peak one cycle surge (non repetitive) current	I_{TSM}		3000		A	10.0 msec (50Hz), sinusoidal waveshape, 180° conduction, $T_j = 125^\circ\text{C}$
I square t	I^2t		45×10^3		A^2s	10 msec
Latching current	I_L		700		mA	$V_D = 12\text{ V}$; $R_L = 12\text{ ohms}$
Holding current	I_H		200		mA	$V_D = 12\text{ V}$; $I = 2.5\text{ A}$
Peak on-state voltage	V_{TM}		2.3		V	$I_{TM} = 500\text{ A}$; $T_j = 25^\circ\text{C}$
Threshold Voltage	V_{TO}		1.5		V	$T_j = 125^\circ\text{C}$
Slope resistance	r_T		1.6		$\text{m}\Omega$	300A to 1000A
Critical rate of rise of on-state current(5)	di/dt		100		$\text{A}/\mu\text{s}$	repetition
Commutator voltage rise rate rating	dV/dt			500	$\text{A}/\mu\text{s}$	$T_j = 125^\circ\text{C}$; $VR \leq 0.67V_{DRM}$

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}		150		mA	$V_D=12V; R_L=30\Omega; T_j=+25^\circ C$
Gate trigger voltage	V_{GT}	0.8	2.5		V	$V_D=12V; R_L=30\Omega; T_j=+25^\circ C$
Peak negative voltage	V_{GRM}		5		V	

Dynamic

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Delay time	t_d		3.0		μs	$I_{FG}=2.0A; V_D=0.4V_{DRM}; t_r=0.5\mu s$
Turn-off time ($V_R=-5V$)	t_q		400		μs	$I_{TM}=250A; di/dt=-10A/\mu s; V_R=100V; dV/dt=30V/\mu s; V_D=67\%V_{DRM}; T_j=125^\circ C$
Reverse recovery current	I_{rr}		1500		μC	$I_{TM}=250A; di/dt=-1A/s; V_R=100V; T_j=125^\circ C$

THERMAL AND MECHANICAL CHARACTERISTICS AND RATINGS

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Operating temperature	T_j	-40	+125		$^\circ C$	
Storage temperature	T_{stg}	-40	+140		$^\circ C$	
Thermal resistance- junction to case	$R_{\theta(j-c)}$		0.080		$^\circ C/W$	Double sided cooled
Thermal resistance - case to heatsink	$R_{\theta(c-s)}$		0.015		$^\circ C/W$	Double sided cooled
Mounting force	P	12	15	14	kN	
Weight	W			0.4	kg.	

* Mounting surfaces smooth, flat and greased

