

STUD TYPE THYRISTOR**Features**

- Hermetic glass -metal seal
- tested according to IEC standards

25A**Typical Applications**

- DC motor controls
- Controlled DC power supplies
- AC switch and thermal control
- Synchronous motor excitation

Major Ratings and Characteristics

Parameters	KP25A	Units
$I_{T(AV)}$	25	A
@ T_c	85	°C
$I_{T(RMS)}$	40	A
I_{TSM} @ 50Hz	380	A
@ 60Hz	450	A
$I^2 t$ @ 50Hz	1000	A ² s
@ 60Hz	780	A ² s
V_{DRM} / V_{RRM}	400 to 1600	V
T_q typical	200	µs
T_J range	- 40 to 125	°C

ELECTRICAL SPECIFICATIONS

Voltage Ratings

Type number	Voltage Code	V_{RRM}/V_{DRM} , maximum repetitive peak reverse voltage V	V_{RSM} , maximum non-repetitive peak rev. voltage V	I_{RRM}/I_{DRM} max. @ $T_J = T_J$ max. mA
KP25A	04	400	500	10
	08	800	900	
	12	1200	1300	
	14	1400	1500	
	16	1600	1700	

On-state Conduction

Parameter	KP25A	Units	Conditions		
$I_{T(AV)}$ Maximum average on-state current @ Case temperature	25	A	180° conduction, half sine wave		
	85	°C			
$I_{T(RMS)}$ Maximum RMS on-state current	40	A			
I_{TSM} Maximum peak, one-cycle non-repetitive surge current	380	A	t = 10ms	No voltage	Sinusoidal half wave, Initial $T_J = T_J$ max.
	450		t = 8.3ms	reapplied	
	330		t = 10ms	100% V_{RRM}	
	350		t = 8.3ms	reapplied	
$I^2 t$ Maximum $I^2 t$ for fusing	1000	$A^2 s$	t = 10ms	No voltage	
	780		t = 8.3ms	reapplied	
	700		t = 10ms	100% V_{RRM}	
	720		t = 8.3ms	reapplied	
$I^2 \sqrt{t}$ Maximum $I^2 \sqrt{t}$ for fusing	5227	$A^2 \sqrt{s}$	t = 0.1 to 10ms, no voltage reapplied, $T_J = T_J$ max.		
V_{TM} Maximum on-state or forward	1.30	V	I _{pk} = 63 A, $T_J = 25^\circ C$		
I_H Maximum holding current	130	mA	$T_J = 25^\circ C$, anode supply 6V resistive load		
I_L Typical latching current	200				

Switching

Parameter	KP25A	Units	Conditions
di/dt Max. rate of rise of turned-on current	50	A/μs	Gate pulse 20V, 15Ω, $t_r \leq 1\mu s$, $T_J = T_J$ max
t_d ical delay time	0.9	μs	Gate current 1A, dig/dt = 1A/μs $V_d = 0.67\% V_{DRM}$, $T_J = 25^\circ C$
T_q pical turn-off time	200	μs	$I_{TM} = I_{T(AV)}$, $T_J = T_J$ max, $t_p > 200\mu s$, $V_R = 100V$, di/dt = -10A/μs, dv/dt = 20V/μs,

Blocking

Parameter	KP25A	Units	Conditions
dv/dt Maximum critical rate of rise of off-state voltage	1000	V/ μ s	T _J = T _J max linear to 100% rated V _{DRM}

Triggering

Parameter	KP25A	Units	Conditions	
P _{GM} Maximum peak gate power	8.0	W	T _J = T _J max	
P _{G(AV)} Maximum average gate power	2.0			
I _{GM} Max. peak positive gate current	1.5	A	T _J = T _J max	
-V _{GM} Maximum peak negative gate voltage	10	V	T _J = T _J max	
I _{GT} DC gate current required to trigger	90 60 35	mA	T _J = - 40°C T _J = 25°C T _J = 125°C Max. required gate trigger current/ voltage are the lowest value which will trigger all units 6V	
V _{GT} DC gate voltage required to trigger	3.0 2.0 1.0			V
I _{GD} DC gate current not to trigger	2.0			
V _{GD} DC gate voltage not to trigger	0.25	T _J = T _J max. V _{DRM} =rated value Max. gate current/ voltage not to trigger is the max. value which will not trigger any unit with rated V anode-to-cathode applied		

Thermal and Mechanical Specification

Parameter	KP25A	Units	Conditions
T _J Max. operating temperature range	-40 to 125	°C	
T _{stg} Max. storage temperature range	-40 to 125		
R _{thJC} Max. thermal resistance, junction to case	0.86	K/W	DC operation
R _{thCS} Max. thermal resistance, case to heatsink	0.35		Mounting surface, smooth, flat and greased
T Mounting torque, \pm 10%	2.8	Nm	
wt Approximate weight	15	g	

Outline Table

