

● **Description:**

High current density due to double mesa technology;
SiPOS and Glass passivation technology used has reliable operation up to 125°C junction temperature. Low Igt parts available.

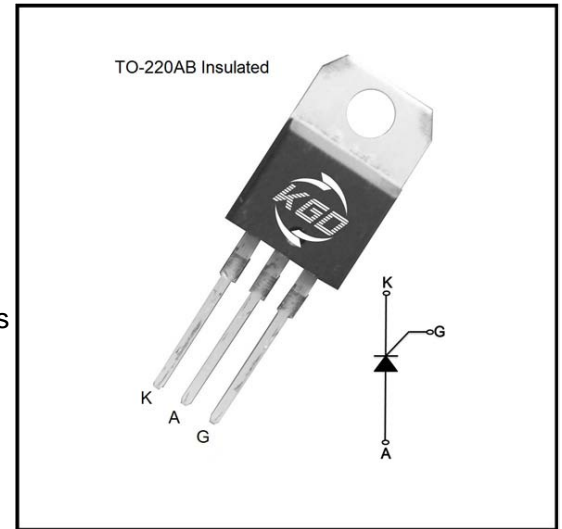
● **Applications:**

GS25 series of silicon controlled rectifiers are specifically designed for high power switching and phase control applications. Typical applications are in input rectification (softstart) and these products are designed to be used with international Rectifier input diodes, switches and output rectifiers which are available in identical package outlines.

● **Features:**

Blocking voltage to 600/1200V
On-state RMS current to 25A
Non-repetitive peak on-state current to 250A

● **Absolute Maximum Ratings**



Symbol	Parameter	Conditions	Min	Max	Unit
V_{DRM}	Repetitive peak off-state voltage	$T_J=25^\circ\text{C}$	600	1200	V
V_{RRM}	Repetitive peak Reverse voltage	$T_J=25^\circ\text{C}$	600	1200	V
$I_{T(RMS)}$	RMS on-state current ($T_c=79^\circ\text{C}$, 180° conduction half sine wave)		-	25	A
$I_{T(av)}$	Average on-state current ($T_c=79^\circ\text{C}$, 180° conduction half sine wave)		-	16	A
I_{TSM}	One cycle Non repetitive surge current	10ms sine pulse, rated VRRM applied	-	250	A
		10ms sine pulse, no voltage applied	-	260	
I^2t	I^2t Value for fusing	10ms sine pulse, rated VRRM applied	-	310	A^2S
		10ms sine pulse, no voltage applied	-	320	
di/dt	Critical rate of rise of turned-on current		-	100	$\text{A}/\mu\text{s}$
I_{GM}	Peak gate current	$T_p=20\mu\text{s}$, $T_J=125^\circ\text{C}$	-	4	A
$P_{G(AV)}$	Average gate power dissipation		-	1	W
T_{STG}	Storage temperature		-40	150	$^\circ\text{C}$
T_J	Junction temperature		-40	125	$^\circ\text{C}$

MCR25N Series
Electrical Characteristics

Symbol	Conditions		T _J			Unit
			-40 °C	25 °C	125 °C	
I _{GT}	Required DC gate current to trigger	MAX	100	40	15	mA
V _{GT}	Required DC gate voltage to trigger (anode supply=6V,resistive load)	MAX	2.5	1.5	1.0	V
V _{GD}	DC gate voltage not to trigger (T _J =125 °C,V _{DRM} =ratedvalue)	MAX		0.2		V
I _L	I _T =1.2I _{GT}	MAX	/	80	/	mA
I _H	Holding current	MAX	/	60	/	mA
dv/dt	V _{DM} =67%V _{DRM} ,gate open,T _J =125 °C	MIN	/	/	500	V/μs

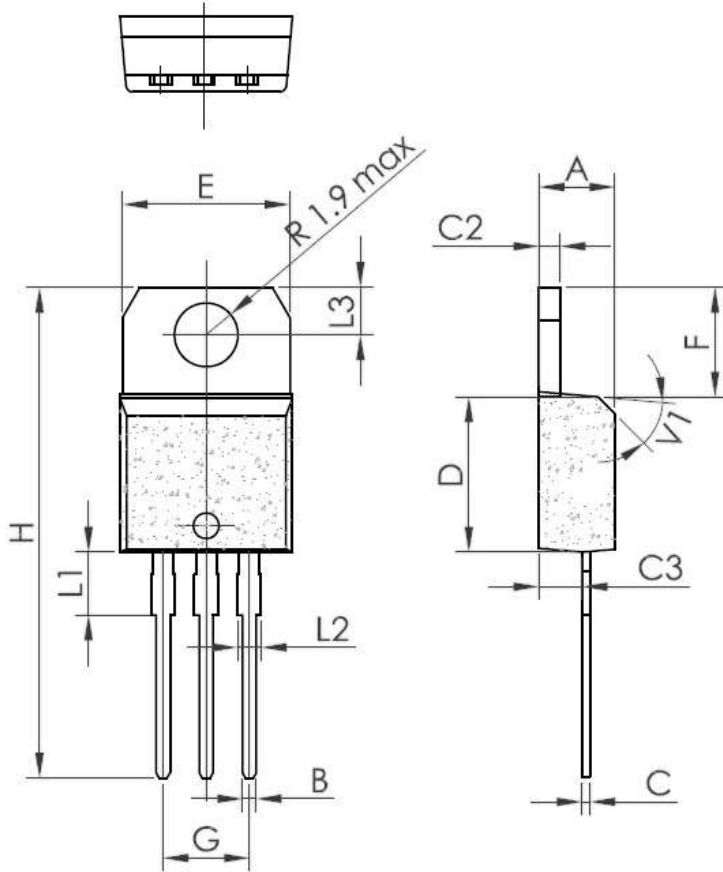
Electrical Characteristics

Symbol	Parameter	Numerical(MAX)	Unit
V _{TM}	I _T =50A,tp=380μs T _J =25 °C	1.6	V
I _{DRM}	V _D =V _{DRM} ,V _R =V _{RDM} T _J =25 °C	10	μA
I _{RDM}	T _J =125 °C	4	mA

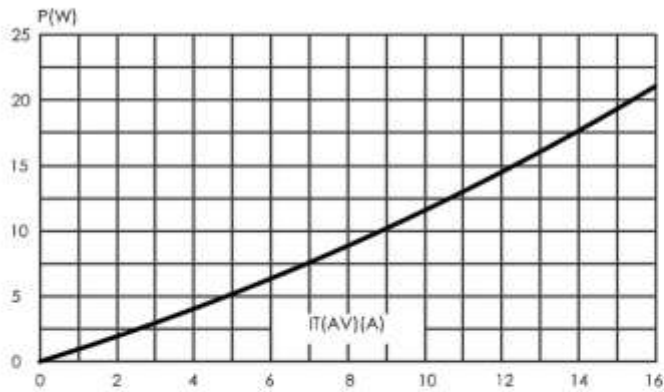
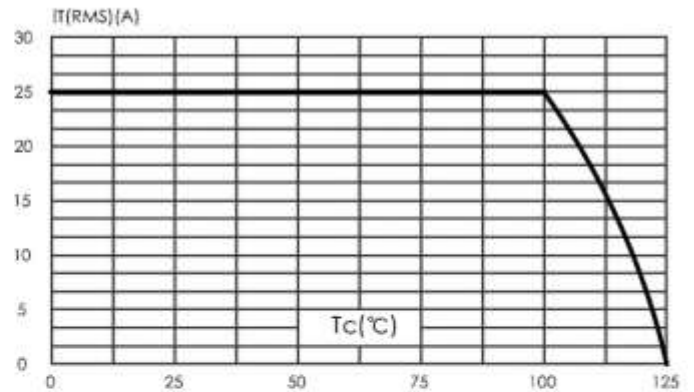
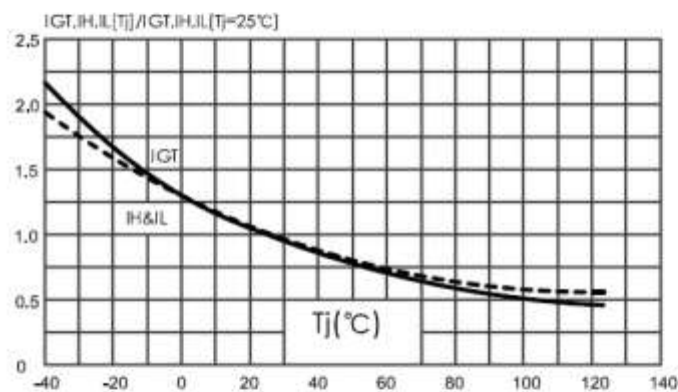
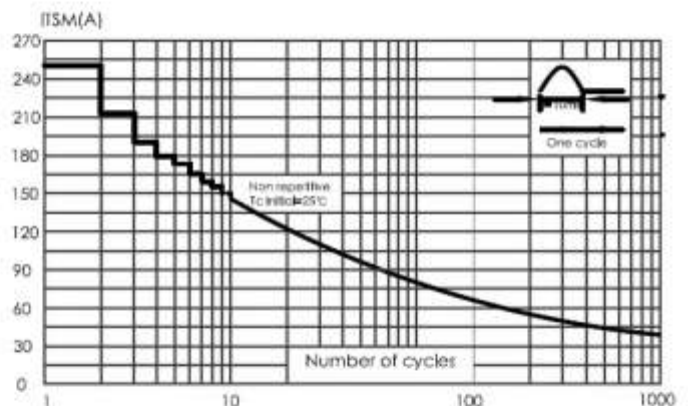
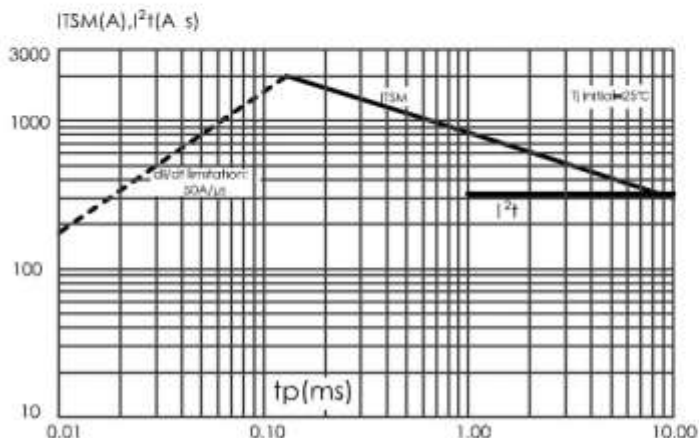
Thermal Characteristics

Symbol	Parameter	Numerical(MAX)	Unit
R _{th(j-c)}	Junction to case(DC)	1.9	°C/W
R _{th(j-a)}	Junction to ambient(DC)	60	°C/W

● Package Outline Dimensions

TO-220AB


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.6	0.173		1.181
B	0.61		0.88	0.024		0.034
C	0.49		0.70	0.019		0.027
C2	1.23		1.32	0.048		0.051
C3	2.4		2.72	0.094		0.107
D	8.6		9.7	0.338		0.382
E	10		10.4	0.393		0.409
F	6.2		6.6	0.244		0.259
G	4.8		5.4	0.189		0.213
H	28.0		29.8	11.0		11.7
L1		3.75			0.147	
L2	1.14		1.7	0.044		0.066
L3	2.65		2.95	0.104		0.116
V1		40°			40°	

FIG.1: Maximum average power dissipation versus average on-state current

FIG.2: RMS on-state current versus case temperature.

FIG.3: Relative variation of gate trigger current, holding current and latching current versus junction temperature.

FIG.4: Surge peak on-state current versus number of cycles.

FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10$ ms, and corresponding value of I^2t

FIG.6: On-state characteristics (maximum values).
