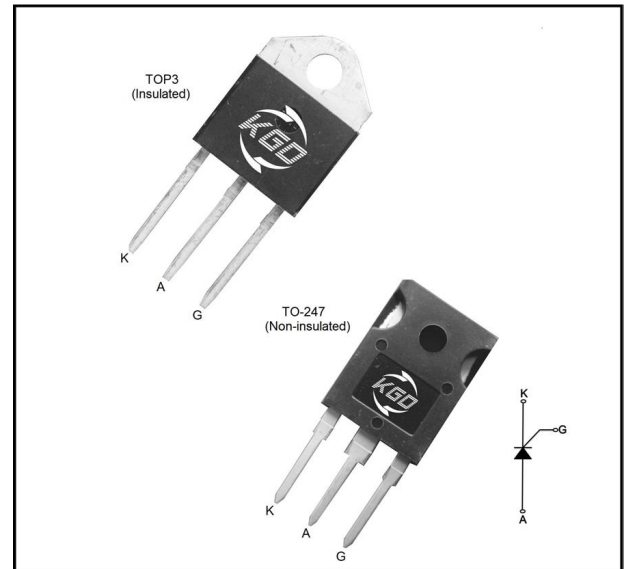


- Description:**  
High current density due to double mesa technology;
- Applications:**  
GS45 series of silicon controlled rectifiers are specifically designed for high power switching and phase control applications.
- Features:**  
 GS45 series are suitable for general purpose applications, a high gate sensitivity is required  
 GS45 series provides a 2500v rms isolation voltage from all three terminals to external heatsink.  
 Blocking voltage to 1200/1600V  
 On-state RMS current to 45A  
 Non-repetitive peak on-state current to 460A



- Absolute Maximum Ratings**

Symbol	Parameter	Conditions	Min	Max	Unit
$V_{DRM}$	Repetitive peak off-state voltage	$T_J=25^\circ\text{C}$	1200	1600	V
$V_{RRM}$	Repetitive peak Reverse voltage	$T_J=25^\circ\text{C}$	1200	1600	V
$I_{T(RMS)}$	RMS on-state current (all conduction angles)	TOP3 $T_c=80^\circ\text{C}$	-	45	A
		TO-247 $T_c=83^\circ\text{C}$	-	45	A
$I_{T(av)}$	Average on-state current (half sine wave)	TOP3 $T_c=80^\circ\text{C}$	-	32	A
		TO-247 $T_c=83^\circ\text{C}$	-	32	A
$I_{TSM}$	Non-repetitive peak On-state current (half sine cycle, $T_J=25^\circ\text{C}$ )	$F=50\text{Hz}$ , $t=10\text{ms}$	-	460	A
		$F=60\text{Hz}$ , $t=8.3\text{ms}$	-	480	A
$I^2t$	$I^2t$ Value for fusing	$T_p=10\text{ms}$	-	1150	$\text{A}^2\text{S}$
$di/dt$	Critical rate of rise of on-state current after triggering	$I_{TM}=20\text{A}$ , $I_G=50\text{mA}$	-	150	$\text{A}/\mu\text{s}$
$I_{GM}$	Peak gate current		-	1.5	A
$P_{GM}$	Peak gate power	$T_p=20\mu\text{s}$ , $T_J=125^\circ\text{C}$	-	10	W
$P_{G(AV)}$	Average gate power dissipation		-	2	W
$T_{STG}$	Storage temperature		-40	150	$^\circ\text{C}$
$T_J$	Junction temperature		-40	125	$^\circ\text{C}$

**Electrical Characteristics**

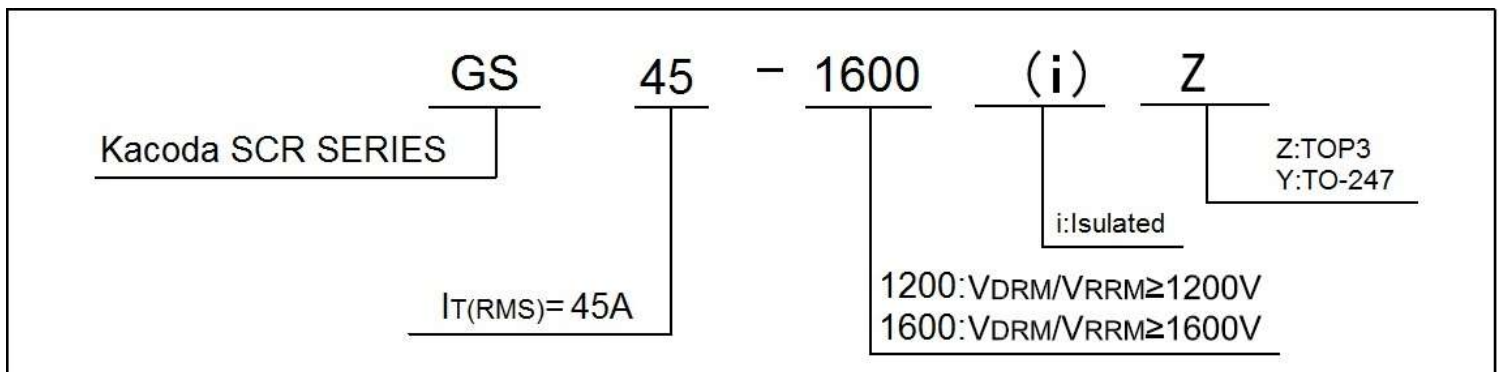
Symbol	Conditions	Numerical		Unit
		MIN	MAX	
$I_{GT}$	$V_D=12V, R_L=33\Omega$	25	60	mA
$V_{GT}$			1.5	V
$V_{GD}$	$V_D=V_{DRM}, R_L=3.3K\Omega, T_J=125^\circ C$		0.2	V
$I_L$	$I_T=1.2I_{GT}$	/	80	mA
$I_H$	$I_T=500mA$	/	60	mA
dv/dt	$V_{DM}=67\%V_{DRM}, \text{gate open}, T_J=125^\circ C$	/	900	V/ $\mu s$

**Electrical Characteristics**

Symbol	Parameter	Numerical(MAX)	Unit
$V_{TM}$	$I_T=80A, t_p=380\mu s$ $T_J=25^\circ C$	1.6	V
$I_{DRM}$	$V_D=V_{DRM}, V_R=V_{RRM}$ $T_J=25^\circ C$	5	$\mu A$
$I_{RRM}$	$T_J=125^\circ C$	4	mA

**Thermal Characteristics**

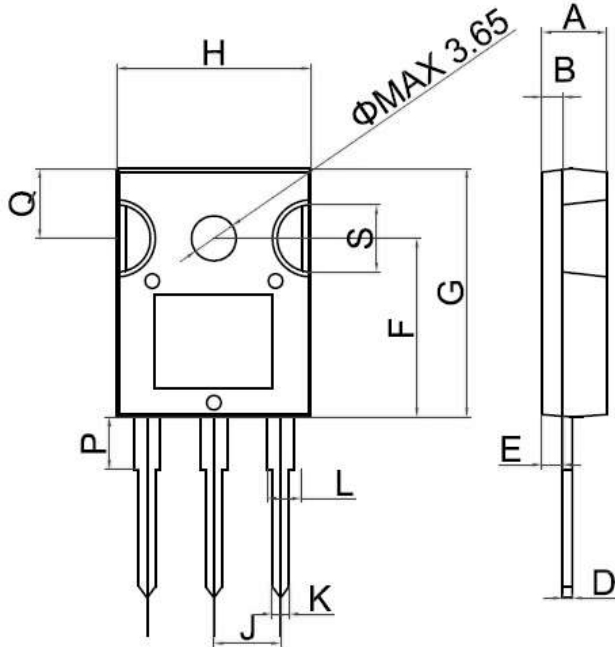
Symbol	Parameter	Numerical(MAX)	Unit
$R_{th(j-mb)}$	Thermal resistance from junction to mounting base	TO-247	0.6
		TOP3	0.65
$R_{th(j-hs)}$	Thermal resistance from junction to heatsink with heatsink compound	TO-247	0.85
		TOP3	0.9

**Ordering Information**


## GS45 Series

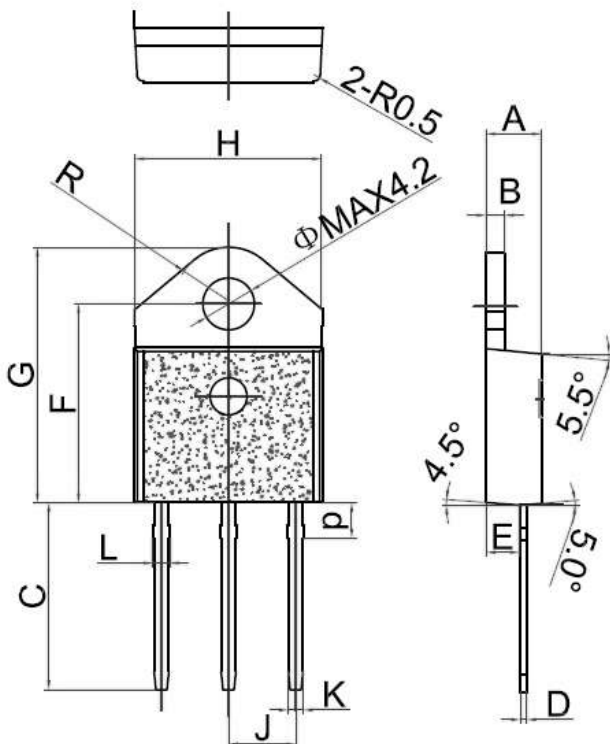
● Package Outline Dimensions

TO-247



Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	5.1	5.4	0.201	0.213
B	1.6	1.8	0.063	0.071
C	14.35	15.4	0.565	0.606
D	0.6	0.9	0.024	0.035
E	1.5	1.75	0.059	0.069
F	14.4	15.1	0.567	0.594
G	19.7	20.6	0.775	0.811
H	15.4	16.2	0.606	0.638
J	5.3	5.6	0.209	0.220
K	1.3	1.5	0.051	0.059
L	2.0	2.3	0.079	0.091
P	4.1	4.4	0.161	0.173
Q	5.6	5.8	0.220	0.228
S	5.35	5.65	0.211	0.222

TOP3(TO-218)



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.6	0.173		0.181
B	1.45		1.55	0.057		0.061
C	14.35		15.6	0.565		0.614
D	0.5		0.7	0.020		0.028
E	2.7		2.9	0.106		0.114
F	15.8		16.5	0.622		0.650
G	20.4		21.1	0.815		0.831
H	15.1		15.5	0.594		0.610
J	5.4		5.65	0.213		0.222
K	1.2		1.4	0.047		0.055
L	1.35		1.50	0.053		0.059
P	2.8		3.0	0.110		0.118
R		4.6			0.181	