



SCF25C60 Series 25A SCRs

DESCRIPTION:

High current density due to double mesa technology.

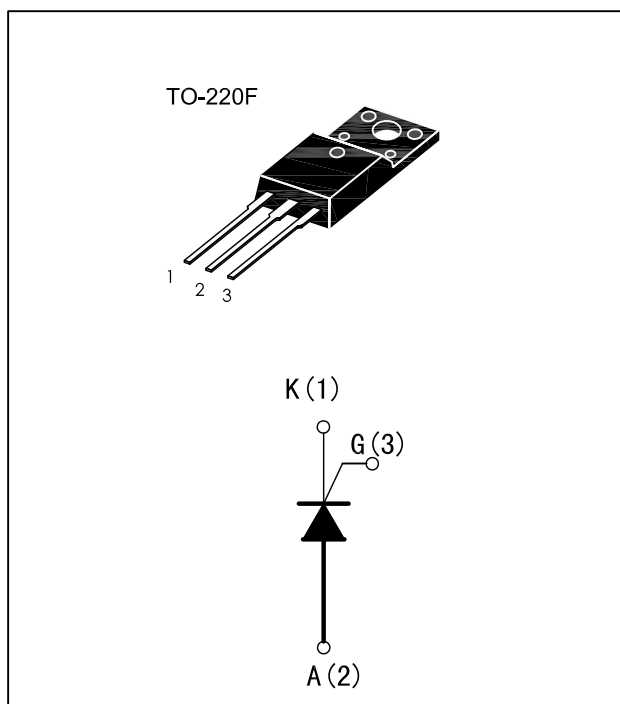
SCF25C60 series of silicon controlled rectifiers are specifically designed for medium power switching and phase control applications.

SCF25C60 series are suitable for general purpose applications, a high gate sensitivity is required.

SCF25C60 are full pack plastic package, they provides a 2500V RMS isolation voltage from all three terminals to external heatsink.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	25	A
IGT	≤ 15	mA
V_{TM}	≤ 1.6	V



ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		Tstg	-40 to +150	°C
Operating junction temperature range		Tj	-40 to +125	°C
Repetitive Peak Off-state Voltage Tj=25°C		VDRM	600	V
Repetitive Peak Reverse Voltage Tj=25°C		VRRM	600	
RMS on-state current (all conduction angels)	TO-220F Tc=69°C	IT(RMS)	25	A
Average on-state current (half sine wave)	TO-220F Tc=69°C	IT(AV)	16	A
Non repetitive surge peak on-state current (half sine cycle, Tj=25°C)	f = 50 Hz t=10ms	ITSM	260	A
	f = 60 Hz t=8.3ms		275	
I²t Value for fusing	tp=8.3ms	I²t	380	A²s
Repetitive rate of rise of on-state current after triggering ITM=20A IG=50mA dIG/dt 50mA/ms		dI _T /dt	50	A/μs
Peak gate current	tp=20us, Tj=125°C	IGM	5	A
Peak gate power	tp=20us, Tj=125°C	PGM	20	W
Average gate power dissipation	Tj=125°C	PG(AV)	1	W

ELECTRICAL CHARACTERISTICS($T_j=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Test Condition	SCF25C60			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12\text{V}$ $R_L=33\Omega$	-	4	15	mA
V_{GT}		-	0.7	1.5	V
V_{GD}	$V_D=V_{DRM}$ $R_L=3.3\text{K}\Omega$ $T_j=125^{\circ}\text{C}$	-	-	0.2	V
I_L	$I_G=1.2I_{GT}$	-	15	40	mA
I_H	$I_T=500\text{mA}$	-	10	20	mA
dV/dt	$V_D=67\%V_{DRM}$ gate open $T_j=125^{\circ}\text{C}$	500	-	-	V/ μs

STATIC CHARACTERISTICS

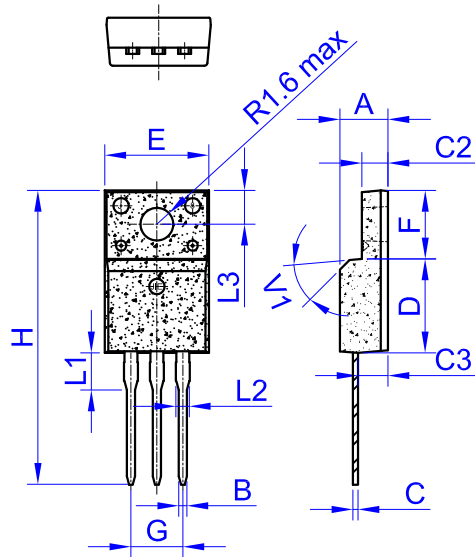
Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=50\text{A}$, $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.6	V
I_{DRM} I_{RRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	10	μA
		$T_j=125^{\circ}\text{C}$	0.5	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th}(j-hs)$	thermal resistance from junction to heatsink with heatsink compound	TO-220F	2.2 $^{\circ}\text{C}/\text{W}$

PACKAGE MECHANICAL DATA

TO-220F



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.8	0.173		0.189
B	0.74	0.8	0.83	0.029	0.031	0.033
C	0.5		0.75	0.020		0.030
C2	2.4		2.7	0.094		0.106
C3	2.6		3.0	0.102		0.118
D	8.8		9.3	0.346		0.367
E	9.7		10.3	0.382		0.406
F	6.4		6.8	0.252		0.268
G	5.0		5.2	0.197		0.205
H	28.0		29.8	11.0		11.7
L1		3.63			0.143	
L2	1.14		1.7	0.044		0.067
L3		3.3			0.130	
V1		40°			40°	

FIG.1: Maximum power dissipation versus average on-state current(half cycle)

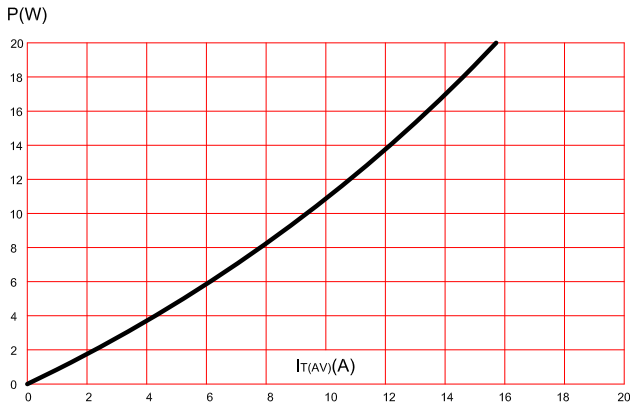


FIG.2: RMS on-state current versus case temperature(full cycle)

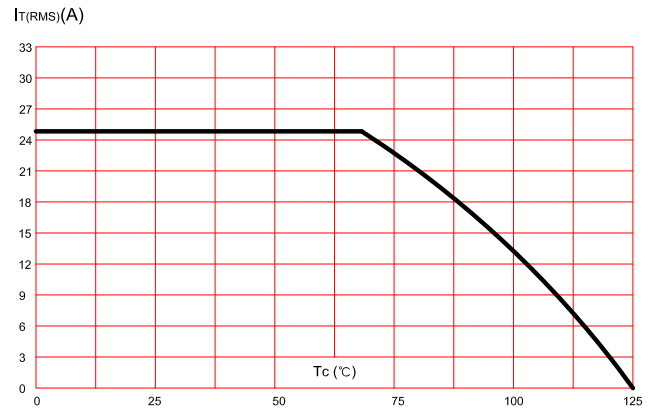


FIG.3: On-state characteristics (maximum values)

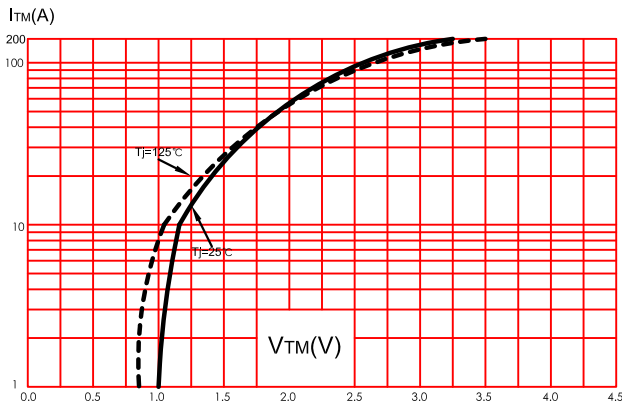


FIG.4: Surge peak on-state current versus number of cycles.

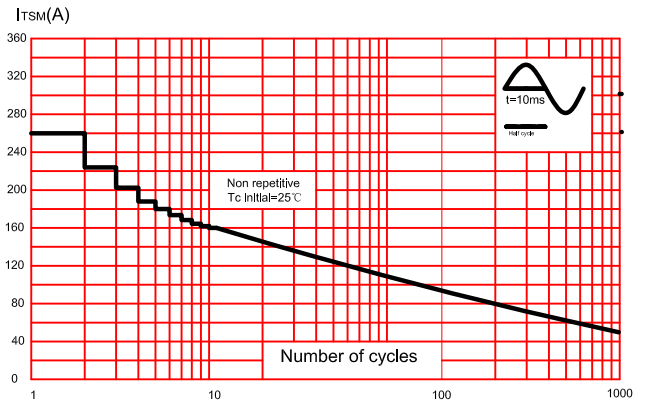


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of I^2t .

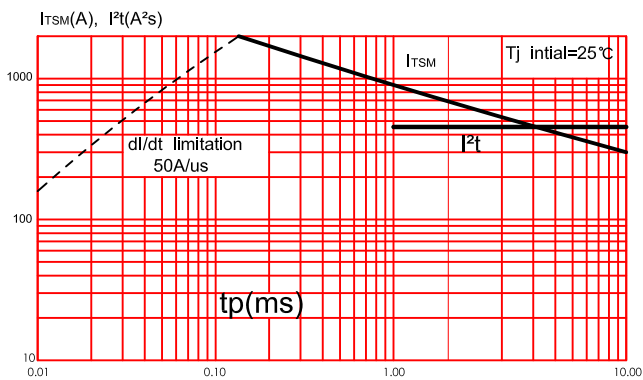


FIG.6: Relative variation of gate trigger current, holding current and latching current versus junction temperature(typical values).

