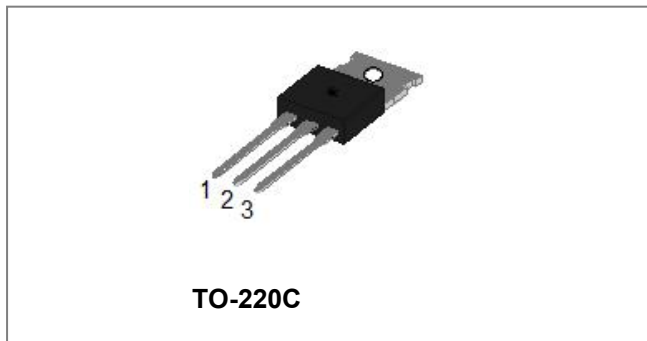
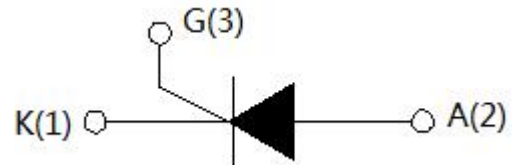


SCT616/816 Series 16A SCRs



Circuit Diagram



Description

With high ability to withstand the shock loading of large current, SCT616/816 series of silicon controlled rectifiers provide high dv/dt rate with strong resistance to electromagnetic interference. They are especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc.

Maximum Ratings:

Characteristics	Symbol	Condition	Max.	Units
Storage junction temperature range	T_J	-	-40 to +125	°C
Operating junction temperature range	T_{stg}	-	-40 to +150	°C
Repetitive peak off-state voltage	V_{DRM}	-	600/800	V
Repetitive peak reverse voltage	V_{RRM}	-	600/800	V
Non repetitive peak off-state voltage	V_{DSM}	-	$V_{DRM} + 100$	V
Non repetitive peak reverse voltage	V_{RSM}	-	$V_{RRM} + 100$	V
RMS on-state current	$I_{(TRMS)}$	TO-220C($T_c=110^\circ\text{C}$)	16	A
Non repetitive surge peak on-state current (tp=10ms)	I_{TSM}	-	180	A
I^2t value for fusing (tp=10ms)	I^2t	-	162	A ² s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	-	50	A/ μ s
Peak gate current	I_{GM}	-	4	A
Average gate power dissipation	$P_{G(AV)}$	-	1	W
Peak gate power	P_{GM}	-	5	W

Electrical Characteristics (T_j=25°C unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I _{GT}	V _D =12V R _L =33Ω	-	-	15	mA
V _{GT}		-	-	1.3	V
V _{GD}	V _D =V _{DRM} T _j =125°C R _L =3.3KΩ	0.2	-	-	V
I _L	I _G =1.2I _{GT}	-	-	60	mA
I _H	I _T =500mA	-	-	50	mA
dV/dt	V _D =2/3V _{DRM} Gate Open T _j =125°C	200	-	-	V/μs

Static Characteristics

Symbol	Condition	Max.	Units
V _{TM}	I _T =32A t _p =380μs, T _j =25°C	1.55	V
I _{DRM}	V _D =V _{DRM} V _R =V _{RRM} , T _j =25°C	5	μA
I _{RRM}	V _D =V _{DRM} V _R =V _{RRM} , T _j =125°C	2	mA

Thermal Resistances

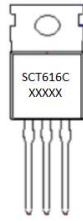
Symbol	Condition	Value	Units
R _{th(j-c)}	Junction to case(AC) TO-220C	1.1	°C/W

Ordering Information

<p>S CT 6 16 C</p> <p>SMC Diode Solutions ———</p> <p>SCRs ———</p> <p>600: V_{DRM}/V_{RRM} ≥ 600V ———</p> <p>800: V_{DRM}/V_{RRM} ≥ 800V ———</p>	<p>————— C:TO-220C</p> <p>————— I_{T(RMS)}:16A</p>
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Device	Package	Shipping
SCT616/816 Series	TO-220C	50pcs/ Tube

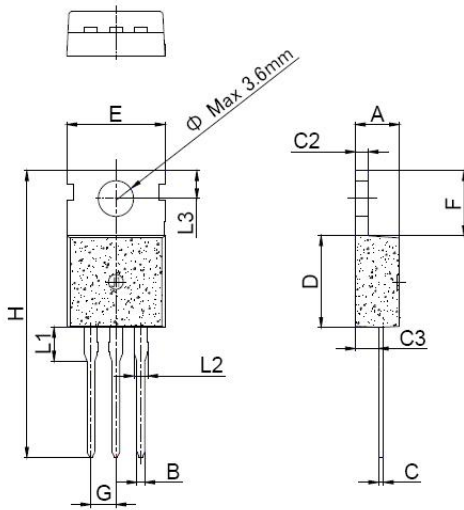
Marking Diagram



Where XXXXX is YYWWL

SCT616C = Part name
YY = Year
WW = Week
L = Lot Number

Mechanical Dimensions TO-220C



SYMBOL	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.70		0.90	0.028		0.035
C	0.45		0.60	0.018		0.024
C2	1.23		1.32	0.048		0.052
C3	2.20		2.60	0.087		0.102
D	8.90		9.90	0.350		0.390
E	9.90		10.3	0.39		0.406
F	6.30		6.90	0.248		0.272
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.39			0.133	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
φ		3.6			0.142	

Ratings and Characteristics Curves

FIG.1 Maximum power dissipation versus RMS on-state current

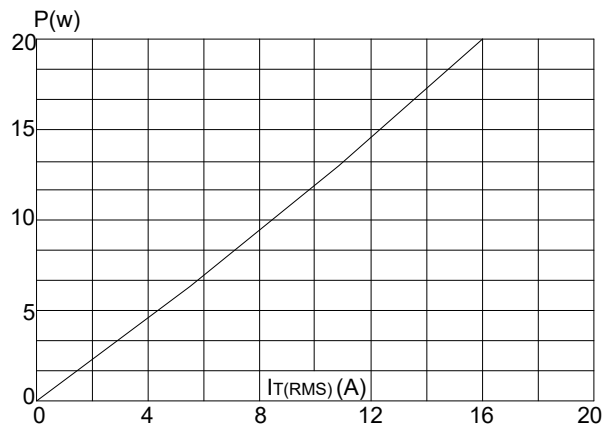


FIG.2: RMS on-state current versus case temperature

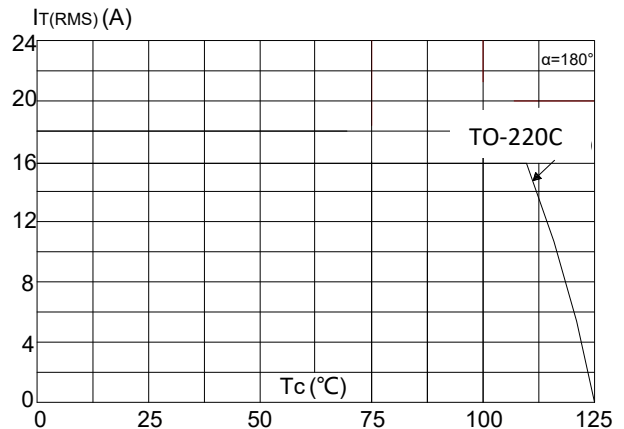


FIG.3: Surge peak on-state current versus number of cycles

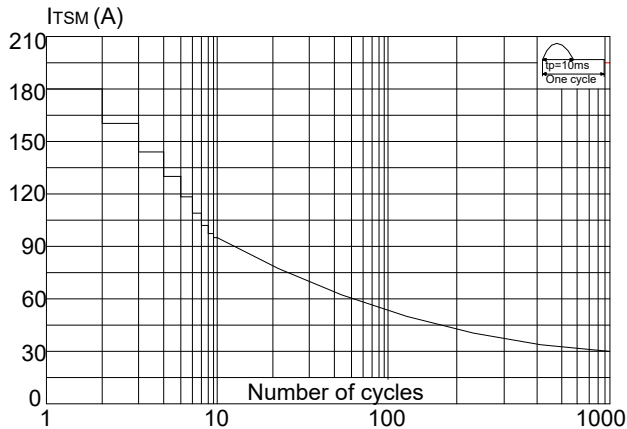


FIG.4: On-state characteristics (maximum values)

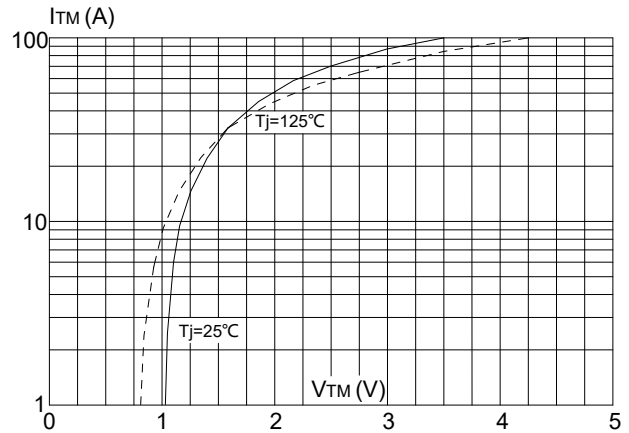


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of $f t$ ($di/dt < 50\text{A}/\mu\text{s}$)

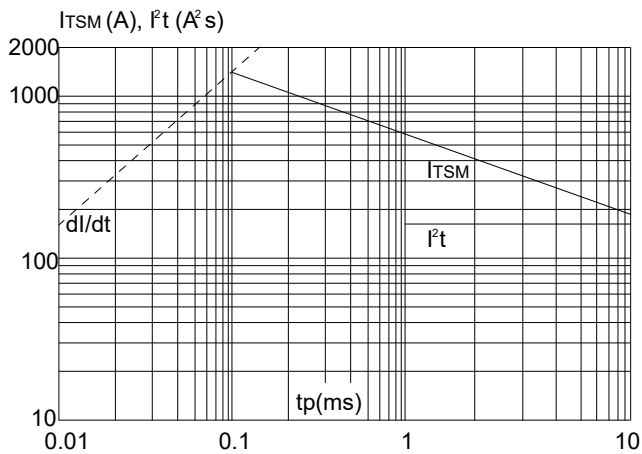
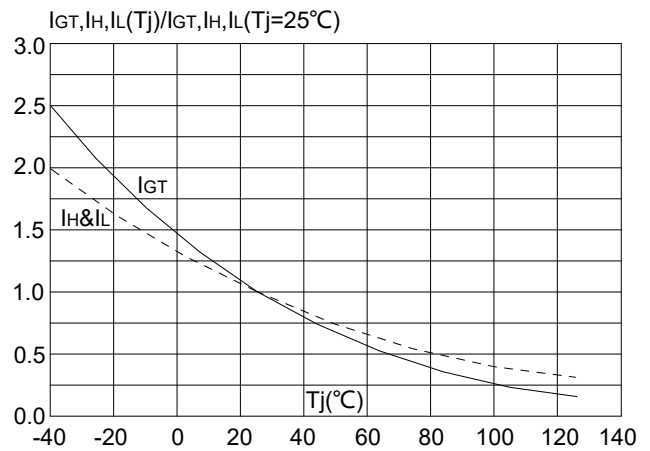


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature





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