

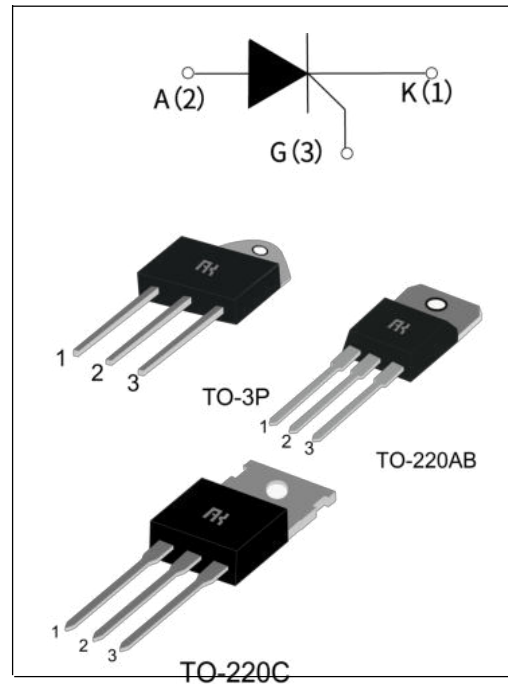
TYN640/840/1240 Serial SCRs

GENERAL DESCRIPTION

TYN640/840/1240 series of silicon controlled rectifiers, with high ability to withstand the shock loading of large current, 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.

Main Features:

$I_{T(RMS)}$	V_{DRM}/V_{RRM}	I_{GT}
40A	600V (TYN640) 800V (TYN840) 1200V (TYN1240)	$\leq 35mA$



Absolute Ratings(limiting values) :

Symbol	Parameter	Value	Unit	
T_{stg}	Storage junction temperature range	- 40 to + 150	$^{\circ}C$	
T_j	Operating junction temperature range	- 40 to + 125	$^{\circ}C$	
$I_{T(RMS)}$	RMS on-state current	TO-220A(Ins) (TC=80 $^{\circ}C$)	40	A
		TO-220B/C(Non-Ins) (TC=85 $^{\circ}C$)		
		TO-3P(Ins) (TC=90 $^{\circ}C$)		
I_{TSM}	Non repetitive surge peak on-state current (tp=10ms)	460	A	
V_{DRM}	Repetitive peak off-state voltage(Tj =25 $^{\circ}C$)	600 and 800 and 1200	V	
V_{RRM}	Repetitive peak reverse voltage(Tj =25 $^{\circ}C$)	600 and 800 and 1200	V	
V_{DSM}	Non repetitive surge peak Off-state voltage	$V_{DRM} + 100$	V	
V_{RSM}	Non repetitive peak reverse voltage	$V_{RRM} + 100$	V	
I^2t	I^2t value for fusing tp = 10 ms	1060	A 2s	
dI/dt	Critical rate of rise of on-state current ($I_G = 2 \times I_{GT}$)	50	A/ μs	

I_{GM}	Peak gate current	4	A
P_{G(AV)}	Average gate power dissipation	1	W
P_{GM}	Peak gate power	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	35	mA
V_{GT}		--	-	1.5	V
V_{GD}	V _D =V _{DRM} R _L =3.3kΩ T _j =125°C	0.2	--	--	V
I_L	I _G =1.2 I _{GT}	--	--	150	mA
I_H	I _T = 500mA	--	--	75	mA
dV/dt	V _D =2/3V _{DRM} Gate Open T _j =125°C	1000	--	--	V/μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	I _{TM} = 80A t _p = 380μs	T _j =25°C	1.6	V
I_{DRM} I_{RRM}	V _D =V _{DRM} , V _R =V _{RDM}	T _j =25°C	10	μ A
		T _j =125°C	4	mA

Thermal Resistances :

Symbol	Parameter		Value	Unit
R_{th(j-c)}	junction to base(AC)	TO-220A(Ins)	1.3	°C/W
		TO-220B/C(Non-Ins)	1.2	
		TO-3P(Ins)	1.1	

Fig.1: Maximum power dissipation versus RMS on-state current

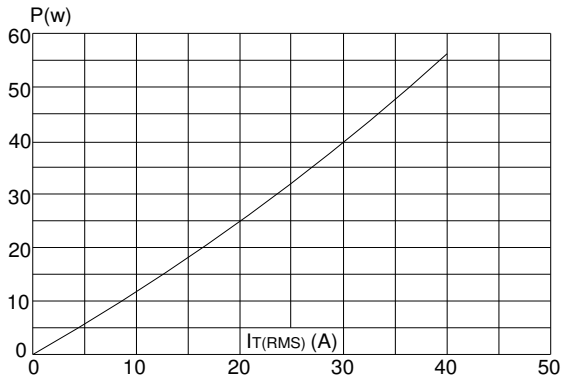


Fig.2 : RMS on-state current versus case temperature

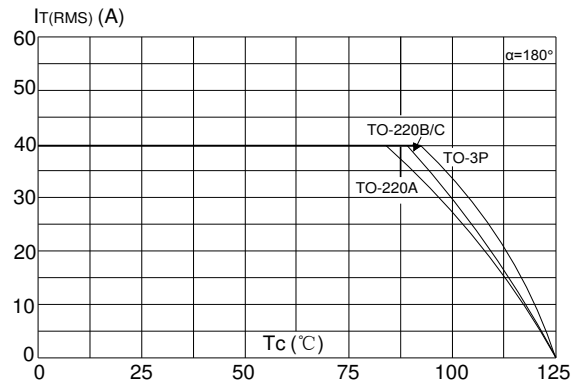


Fig.3 : Surge peak on-state current versus number of cycles

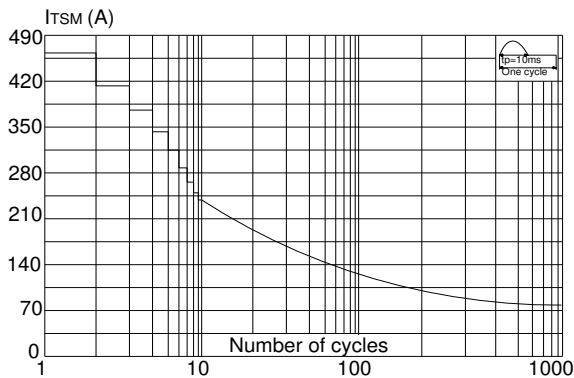


Fig.4 : On-state characteristics (maximum values)

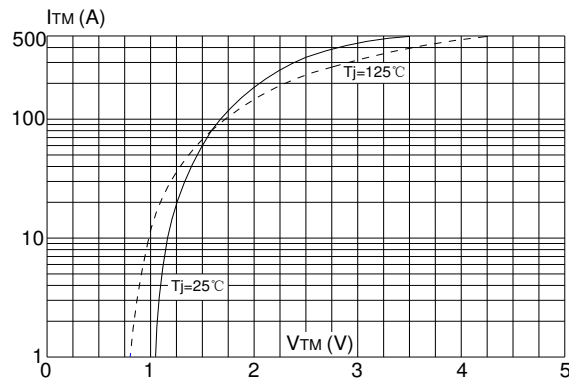


Fig.5 : Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$ and corresponding value of $I^2 t$ ($dI/dt < 50\text{A}/\mu\text{s}$)

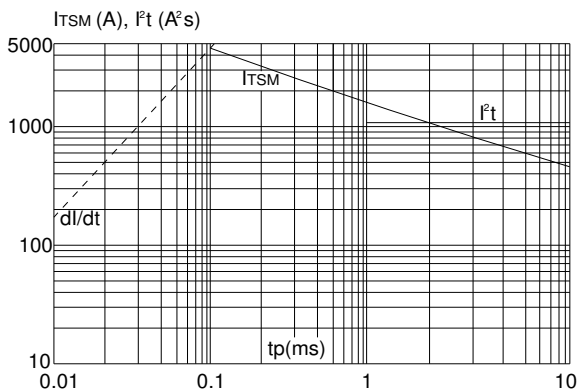
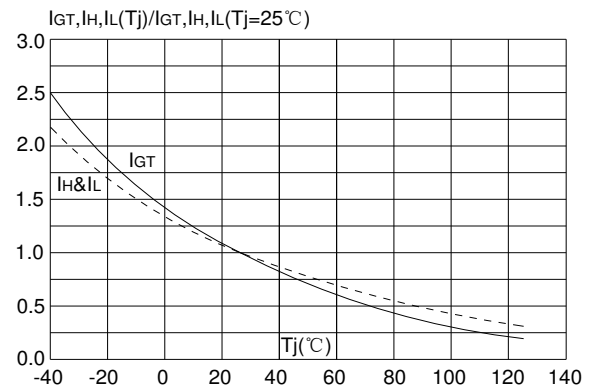
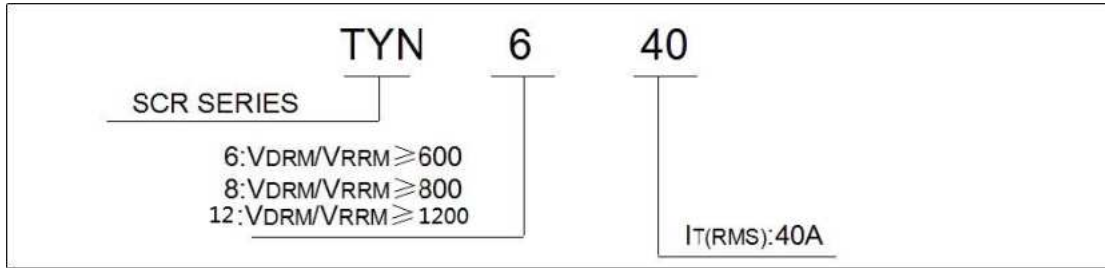


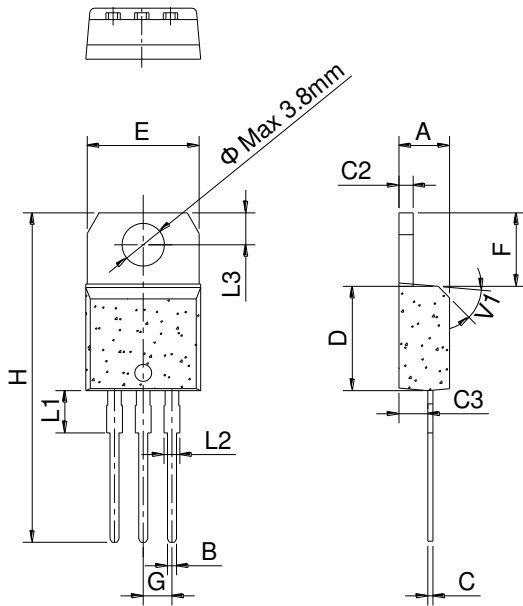
Fig.6: Relative variations of gate trigger current versus junction temperature



Ordering Information:

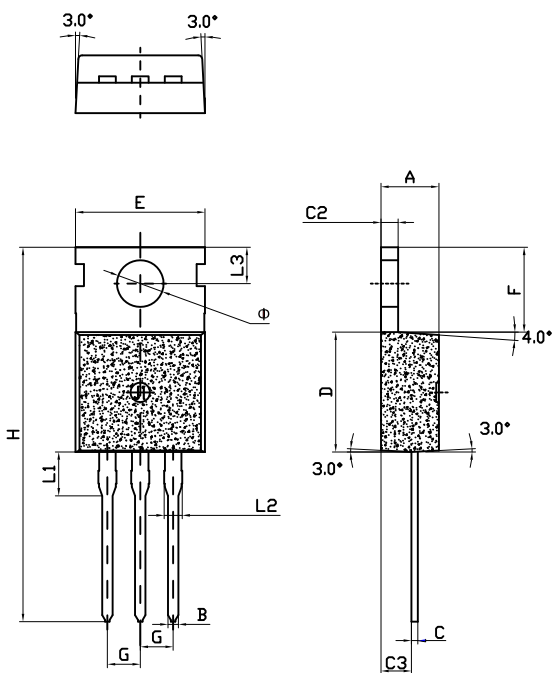


Package Mechanical Data :



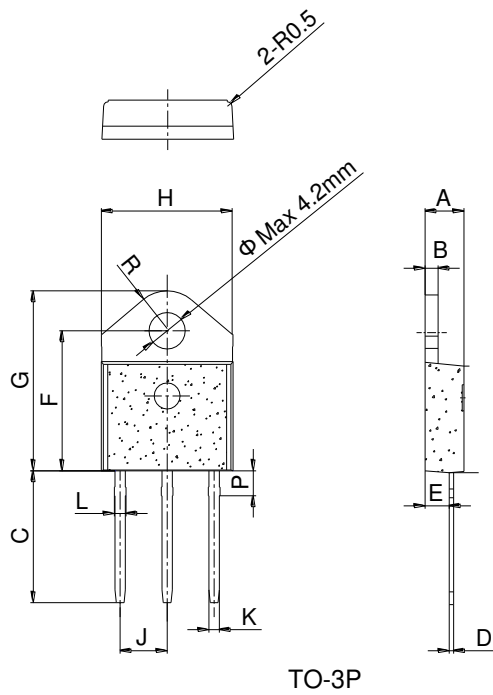
TO-220A/B

Ref.	Dimensions					
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40					
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	



TO-220C

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.6	0.173		1.181
B	0.7		0.9	0.027		0.035
C	0.45		0.6	0.018		0.024
C2	1.23		1.32	0.048		0.052
C3	2.2		2.6	0.086		0.102
D	8.9		9.9	0.350		0.390
E	9.9		10.3	0.390		0.406
F	6.3		6.9	0.248		0.272
G		2.54			0.1	
H	28.0		29.8	11.0		11.7
L1		3.2			0.126	
L2	1.14		1.7	0.045		0.067
L3	2.65		2.95	0.104		0.116
Φ		3.6			0.142	



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	1.45		1.55	0.057		0.061
C	14.35		15.60	0.565		0.614
D	0.50		0.70	0.020		0.028
E	2.70		2.90	0.106		0.114
F	15.80		16.50	0.622		0.650
G	20.40		21.10	0.803		0.831
H	15.10		15.50	0.594		0.610
J	5.40		5.65	0.213		0.222
K	1.10		1.40	0.043		0.055
L	1.35		1.50	0.053		0.059
P	2.80		3.00	0.110		0.118
R		4.35			0.171	