



# Product Manual

EKWIN ELECTRONICS CO.,LTD

**EK TYN612/812**

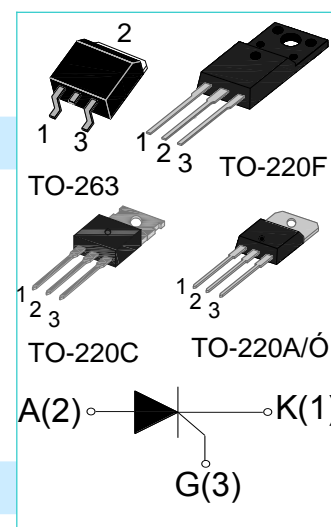
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 Standard TRIACS

**TYN612/812 Serial**

**Main Features:**

$I_{T(RMS)}$	$V_{DRM}/V_{RRM}$	$I_{GT}$
12A	600V (TYN612) 800V (TYN812)	$\leq 15mA$



**Description:**

High current density due to singel mesa technology.TYNx12 series of silicon controlled rectifiers are specifically designed for medium power switching and phase control applications. TYNx12 series are suitable for general purpose applications.a high gate sensitivity is required .

**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-220F(Ins) (TC=85 $^{\circ}C$ )	12	A
		TO-220A(Ins) (TC=90 $^{\circ}C$ )		
		TO-220B/C/263(Non-Ins) (TC=100 $^{\circ}C$ )		
$I_{TSM}$	Non repetitive surge peak on-state current (tp=10ms)	140	A	
$V_{DRM}$	Repetitive peak off-state voltage(Tj =25 $^{\circ}C$ )	600 and 800	V	
$V_{RRM}$	Repetitive peak reverse voltage(Tj =25 $^{\circ}C$ )	600 and 800	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	98	A <sup>2</sup> s	
$dI/dt$	Critical rate of rise of on-state current ( $I_G = 2 \times I_{GT}$ )	50	A/ $\mu s$	

<b>I<sub>GM</sub></b>	Peak gate current	4	A
<b>P<sub>G(AV)</sub></b>	Average gate power dissipation	1	W
<b>P<sub>GM</sub></b>	Peak gate power	5	W

### Electrical Characteristics : (T<sub>j</sub>=25°C unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN	TYP	MAX	
<b>I<sub>GT</sub></b>	V <sub>D</sub> =12V R <sub>L</sub> =33Ω	--	-	15	mA
<b>V<sub>GT</sub></b>		--	-	1.5	V
<b>V<sub>GD</sub></b>	V <sub>D</sub> =V <sub>DRM</sub> R <sub>L</sub> =3.3kΩ T <sub>j</sub> =125°C	0.2	--	--	V
<b>I<sub>L</sub></b>	I <sub>G</sub> =1.2 I <sub>GT</sub>	--	--	60	mA
<b>I<sub>H</sub></b>	I <sub>T</sub> = 500mA	--	--	30	mA
<b>dV/dt</b>	V <sub>D</sub> =2/3V <sub>DRM</sub> Gate Open T <sub>j</sub> =125°C	200	--	--	V/μs

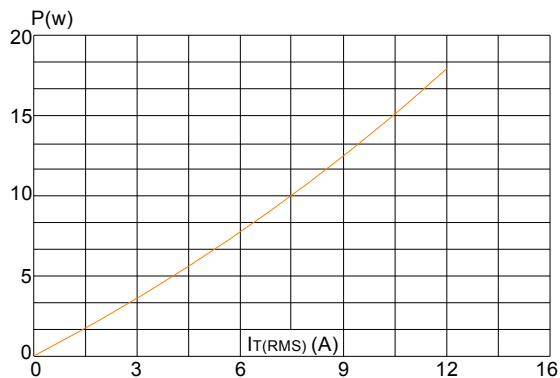
### STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
<b>V<sub>TM</sub></b>	I <sub>TM</sub> = 24A tp= 380μs	T <sub>j</sub> =25°C	1.55	V
<b>I<sub>DRM</sub></b> <b>I<sub>RRM</sub></b>	V <sub>D</sub> =V <sub>DRM</sub> , V <sub>R</sub> =V <sub>RRM</sub>	T <sub>j</sub> =25°C	5	μ A
		T <sub>j</sub> =125°C	2	mA

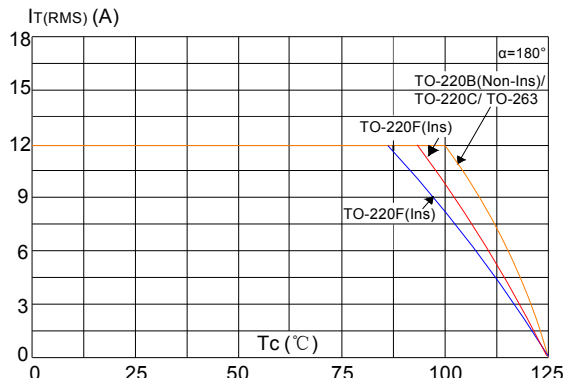
### Thermal Resistances :

Symbol	Parameter		Value	Unit
<b>R<sub>th(j-c)</sub></b>	junction to base(AC)	TO-220B/C/263(Non-Ins)	1.3	°C/W
		TO-220F(Ins)	1.7	
		TO-220A(Ins)	1.1	

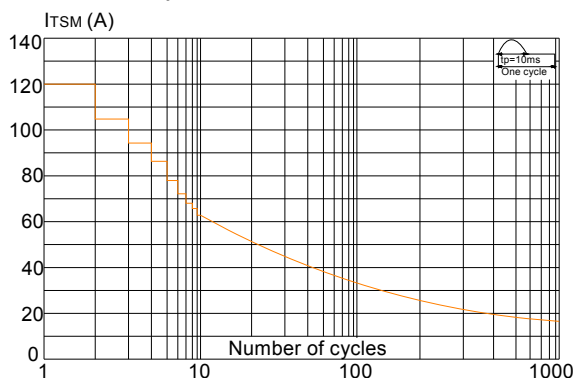
**FIG.1:** Maximum power dissipation versus RMS on-state current



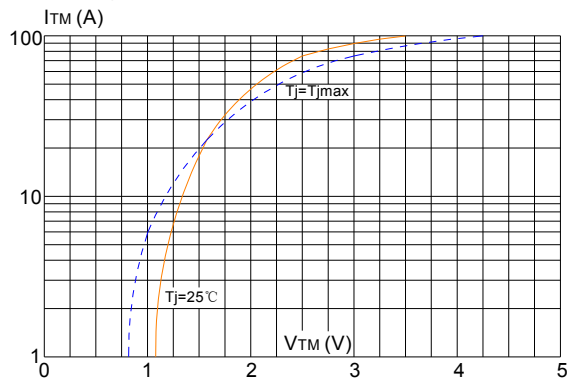
**FIG.2:** RMS on-state current versus case temperature



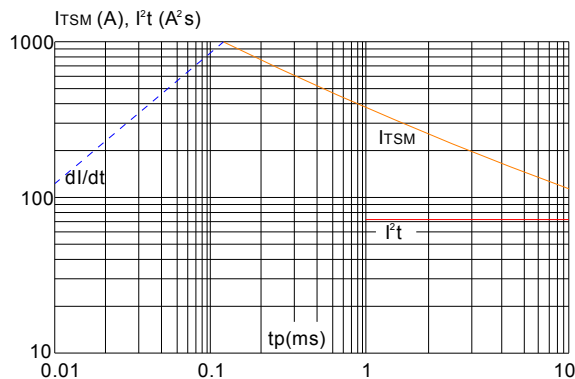
**FIG.3:** Surge peak on-state current versus number of cycles



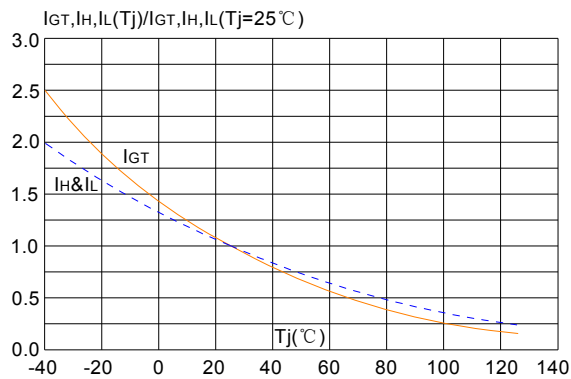
**FIG.4:** On-state characteristics (maximum values)



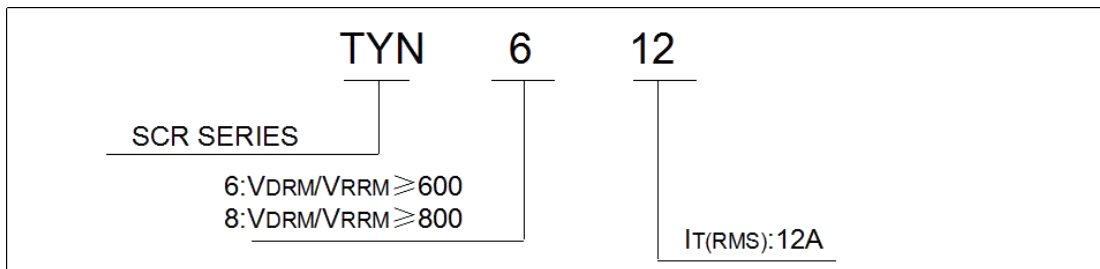
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$ , and corresponding value of  $I^2t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )



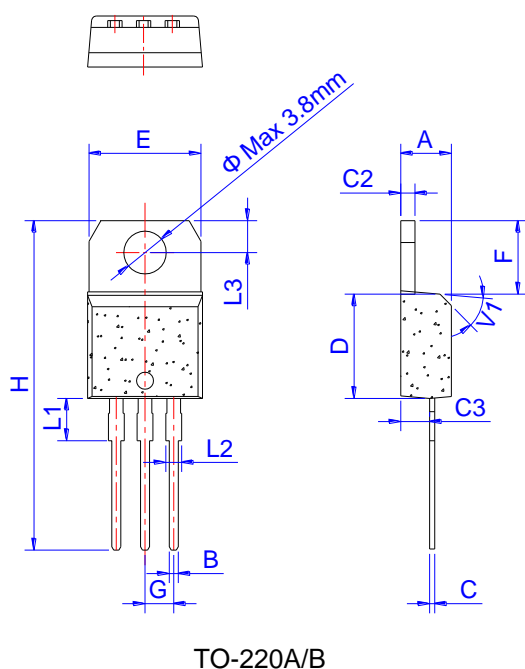
**FIG.6:** Relative variations of gate trigger current, holding current and latching current versus junction temperature



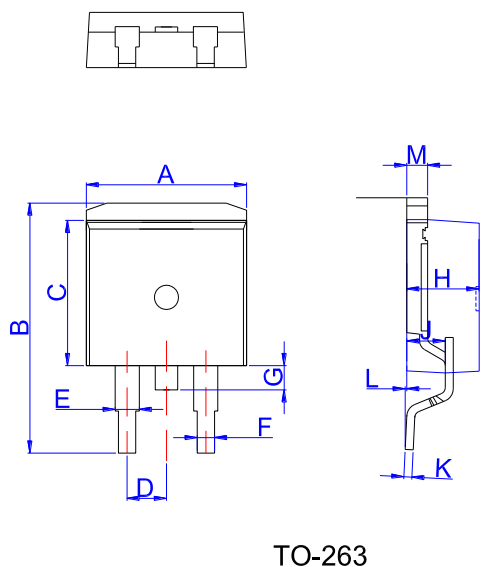
**Ordering Information:**



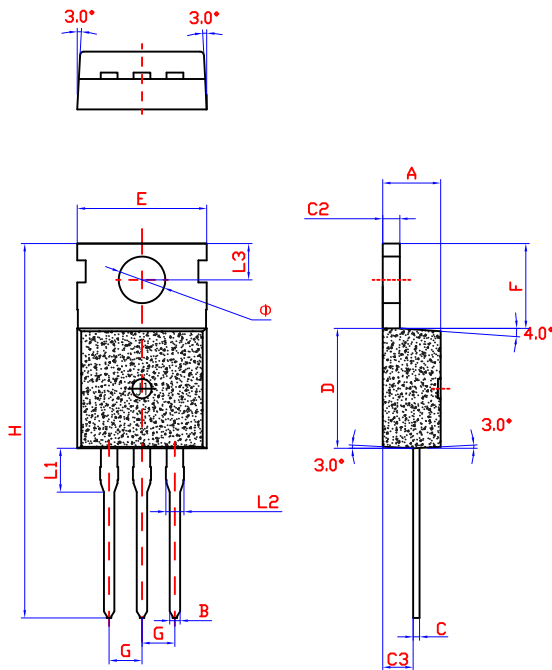
**Package Mechanical Data :**



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
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°	

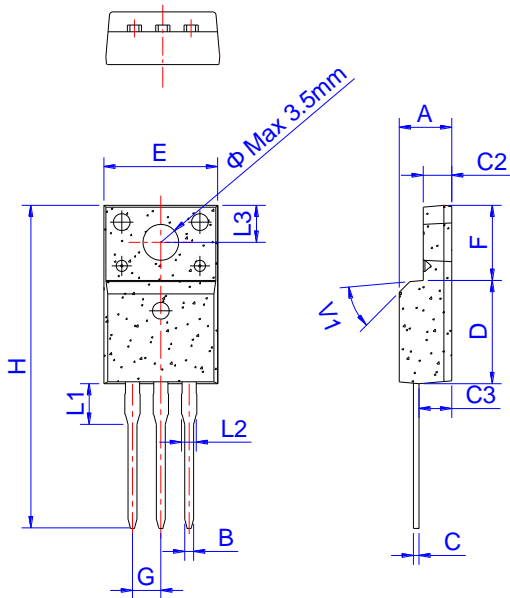


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
B	14.70		15.80	0.579		0.622
C	9.4		9.6	0.37		0.378
D		2.54			0.100	
E	1.20		1.40	0.047		0.055
F	0.75		0.85	0.029		0.033
G			1.75			0.069
H	4.40		4.70	0.173		0.185
J	2.30		2.70	0.091		0.106
K	0.38		0.55	0.015		0.022
L	0	0.10	0.25	0	0.004	0.010
M	1.25		1.35	0.049		0.053



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
$\Phi$		3.6			0.142	



TO-220F Ins

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.80	0.173		0.189
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.48		0.75	0.019		0.030
C2	2.40		2.70	0.094		0.106
C3	2.60		3.00	0.102		0.118
D	8.80		9.30	0.346		0.366
E	9.70		10.3	0.382		0.406
F	6.40		7.00	0.252		0.276
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.63			0.143	
L2	1.14		1.70	0.045		0.067
L3		3.30			0.130	
V1		45°			45°	