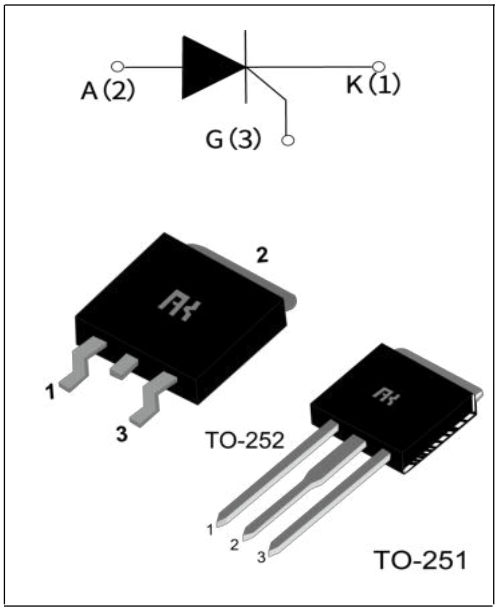
TN1615 Serial 16A SCRs

GENERAL DESCRIPTION£”

High current density due to sing mesa technology. TN1615 series of silicon controlled rectifiers are specifically designed for medium power switching and phase control applications.TN1615 series are suitable for general purpose applications where a high gate sensitivity is required.



Main Features:

IT(RMS)	VDRM/VRRM	VTM
16 A	600V and 800 V	≤1.75 V

Absolute Ratings(limiting values) :

Symbol	Parameter		value	Unit
$I_{T(RMS)}$	on-state RMS current(180°C conduction angle)		16	A
I_{TSM}	Non repetitive surge peak on-state current (Tj= 25 ˚C)	tp= 8.3 ms	200	A
		tp = 10 ms	190	
V_{DRM}	Repetitive peak off-state voltage(Tj =25℃)		600 and 800	V
V_{RRM}	Repetitive peak reverse voltage(Tj =25℃)		600 and 800	V
Tstg Tj	Storage and operating junction temperature range		- 40 to + 150 - 40 to + 125	°C
I^2t	I^2t value for fusing T_j = 125°C	tp = 10 ms	180	A^2s
d_I/d_t	Critical rate of rise of on-state current I_G=2xI_{GT}, tr≤100ns		50	A/µs
IGM	Peak gate current tp=20us Tj=125℃		4	A
PGM	Peak gate power tp=20us Tj=125℃		5	W
PG(av)	Average gate power dissipation Tj=125℃		1	W

Electrical Characteristics :

Symbol	Test Condition		range	Value	Unit
I_{GT}	V_D=12V R_L=3.3kΩ	T_j=25°C	MAX	15	mA
V_{GT}		T_j=25°C	MAX	1.5	V
V_{GD}	V_D=V_{DRM} R_L=3.3kΩ	T_j=125°C	MIN	0.2	V
t_{gt}	V_D=V_{DRM} I_G= 500mA dIG/dt = 0.2A/μs	T_j=25°C	TYP	2	μs
I_L	V_D=12V I_{GT} = 0.1 A	T_j=25°C	TYP	40	mA
I_H	I_T= 500mA gate open	T_j=25°C	MAX	30	mA
V_{TM}	I_{TM}= 2*$I_{T\ (RMS)}$ tp=380μs	T_j=25°C	MAX	1.75	V
I_{DRM} I_{RRM}	V_D=V_{DRM} ,V_R=V_{RRM}	T_j=125°C	TYP	5	μA
		T_j=125°C	MAX	2	mA
dV/dt	V_D=67%V_{DR} exponential waveform; R_{GK} = 100 Ω	T_j=125°C	TYP	500	V/μs

Thermal Resistances :

Symbol	Parameter		Value	Unit
$R_{th\ (j\text{-}mb)}$	junction to mounting case	TO-251/252	1.1	°C/W

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

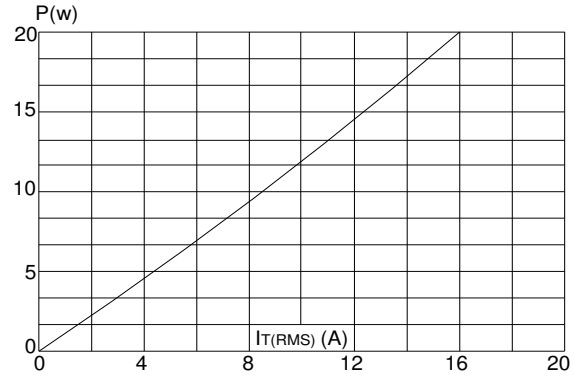


FIG.2: RMS on-state current versus case temperature

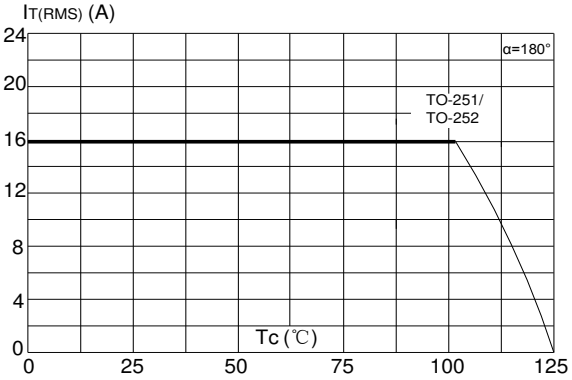


FIG.3: Surge peak on-state current versus number of cycles

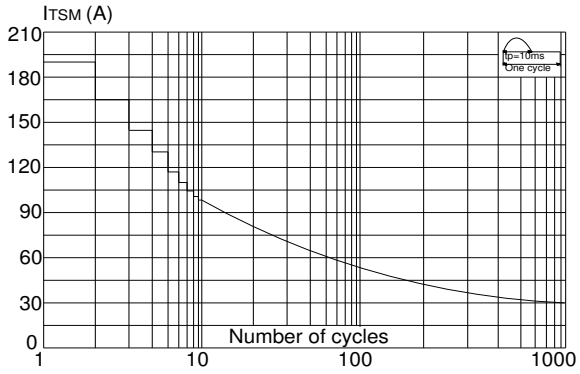


FIG.4: On-state characteristics (maximum values)

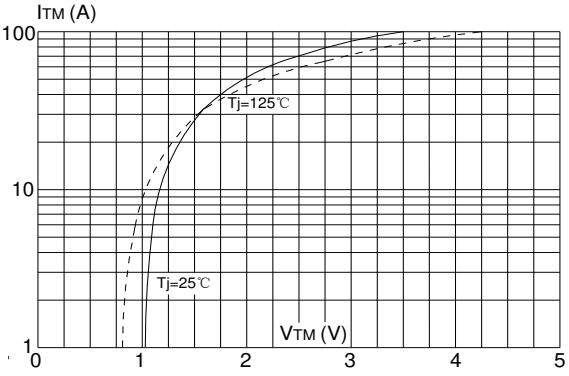


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponging value of I^2t (dI/dt < 50A/µs)

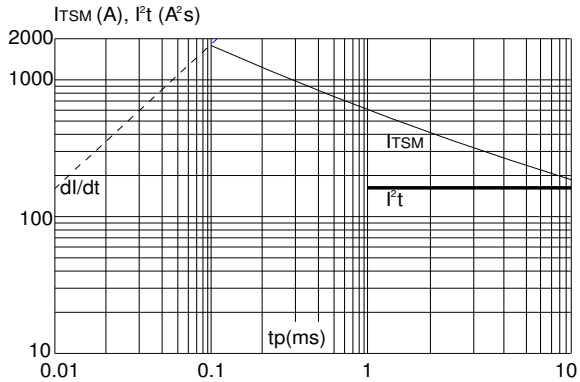
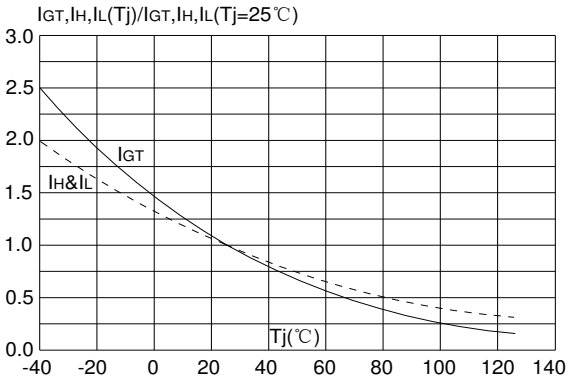
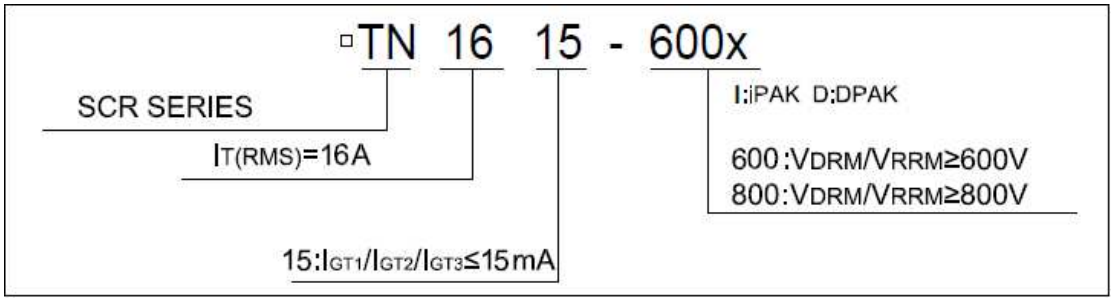


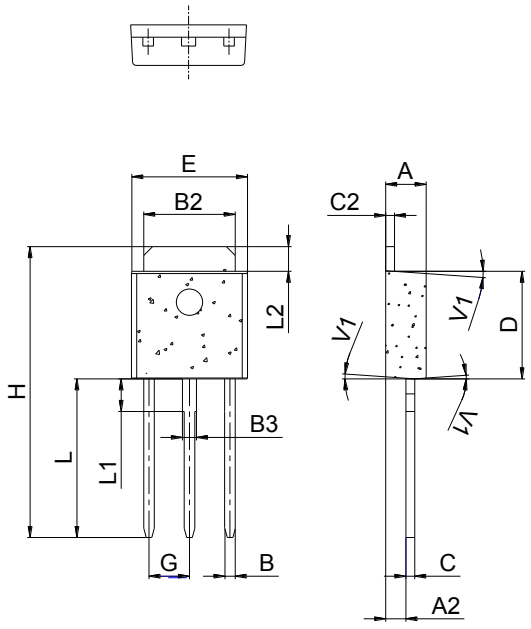
FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



Ordering Information

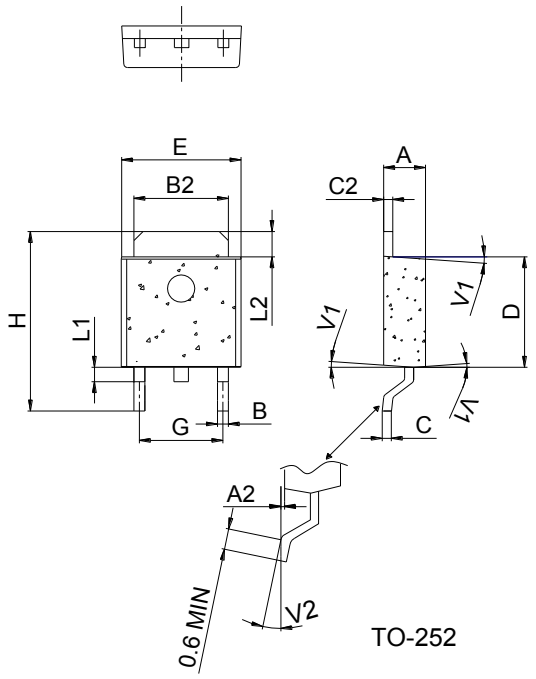


Package Mechanical Data :



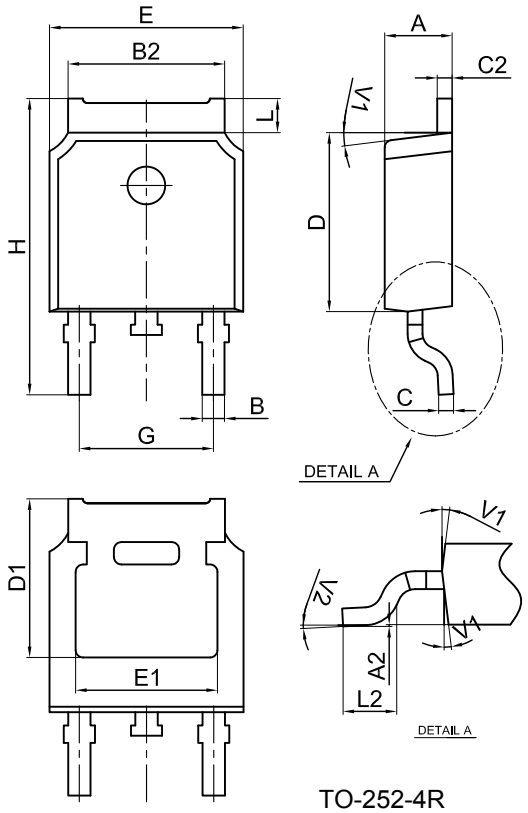
TO-251

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.90		1.20	0.035		0.047
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
B3	0.76		0.85	0.030		0.033
C	0.45		0.62	0.018		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G		2.30			0.091	
H	16.0		17.0	0.630		0.669
L	8.90		9.40	0.350		0.370
L1	1.80		1.90	0.071		0.075
L2	1.37		1.50	0.054		0.059
V1		4°			4°	



TO-252

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
C	0.45		0.62	0.018		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G	4.40		4.70	0.173		0.185
H	9.35		10.6	0.368		0.417
L1	1.30		1.70	0.051		0.067
L2	1.37		1.50	0.054		0.059
V1		4°			4°	
V2	0°		8°	0°		8°



TO-252-4R

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°

Note: This package drawing may slightly differ from the physical package. However, all the specified dimensions are guaranteed.