



T16xxH Series 16A TRIACs

Rev.5.0

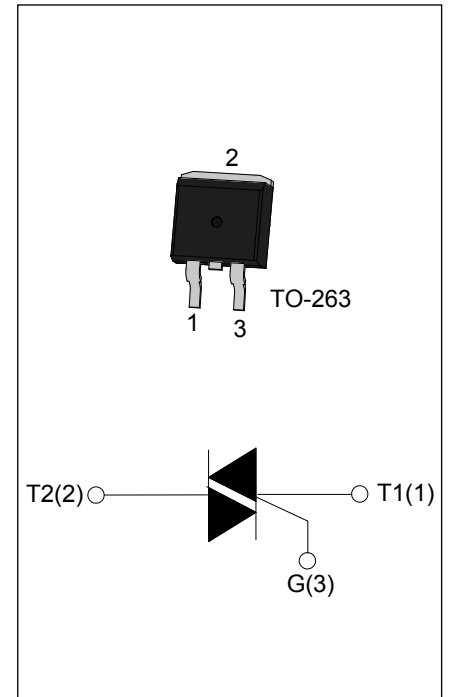
DESCRIPTION:

T16xxH series triacs of high junction temperature with high dv/dt rate with strong resistance to electromagnetic interference provide high ability to withstand the shock loading of large current. They are especially recommended for use on inductive load and high environment temperature condition.

Package TO-263 is RoHS compliant. (2011/65/EU)

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	16	A
V_{DRM}/V_{RRM}	600/800	V
T_{jmax}	150	°C



ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T_{stg}	-40-150	°C
Operating junction temperature range		T_j	-40-150	°C
Repetitive peak off-state voltage($T_j=25^\circ\text{C}$)		V_{DRM}	600/800	V
Repetitive peak reverse voltage($T_j=25^\circ\text{C}$)		V_{RRM}	600/800	V
RMS on-state current	TO-263 ($T_C=115^\circ\text{C}$)	$I_{T(RMS)}$	16	A
Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$)		I_{TSM}	160	A
I^2t value for fusing ($t_p=10\text{ms}$)		I^2t	144	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)		di/dt	50	$\text{A}/\mu\text{s}$
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	Quadrant		Value				Unit
				T1610H	T1620H	T1635H	T1650H	
I _{GT}	V _D =12V R _L =33Ω	I - II - III	MAX	10	20	35	50	mA
V _{GT}		I - II - III	MAX	1.5				V
V _{GD}	V _D =V _{DRM} T _j =150°C R _L =3.3KΩ	I - II - III	MIN	0.2				V
I _L	I _G =1.2I _{GT}	I - III	MAX	20	40	50	80	mA
		II		35	55	70	100	
I _H	I _T =100mA		MAX	20	30	45	70	mA
dV/dt	V _D =2/3V _{DRM} R _{GK} =1KΩ T _j =150°C		MIN	200	500	1000	1500	V/μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V _{TM}	I _{TM} =22.5A tp=380μs	T _j =25°C	1.4	V
I _{DRM}	V _D =V _{DRM} V _R =V _{RDM}	T _j =25°C	5	μA
I _{RRM}		T _j =150°C	2	mA

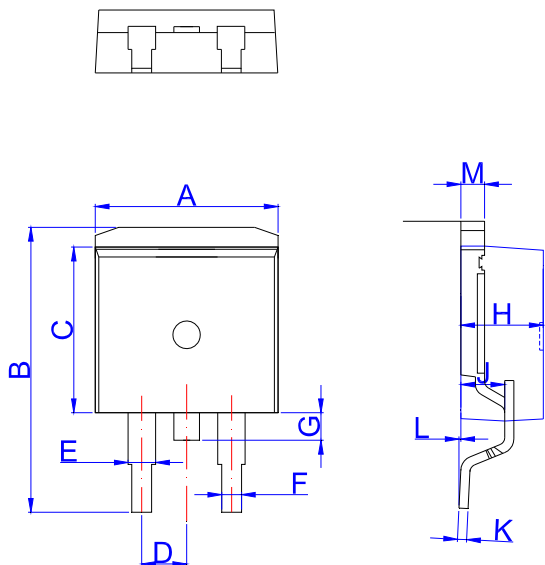
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
R _{th(j-c)}	junction to case(AC)	TO-263	0.97	°C/W
R _{th(j-a)}	junction to ambient		45	

ORDERING INFORMATION

T Triacs I _{T(RMS)} :16A 10:I _{GT1-3} ≤10mA 20:I _{GT1-3} ≤20mA 35:I _{GT1-3} ≤35mA 50:I _{GT1-3} ≤50mA	16	20	H	-6 6:V _{DRM} /V _{RDM} ≥600V 8:V _{DRM} /V _{RDM} ≥800V	E E:TO-263 ETR:TO-263(Tape&Reel)
			High junction temperature		

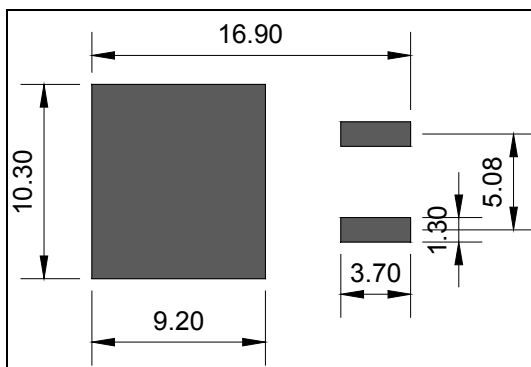
PACKAGE MECHANICAL DATA



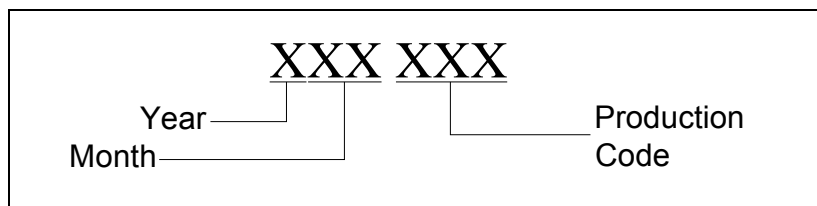
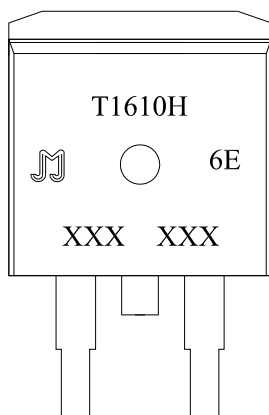
TO-263

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

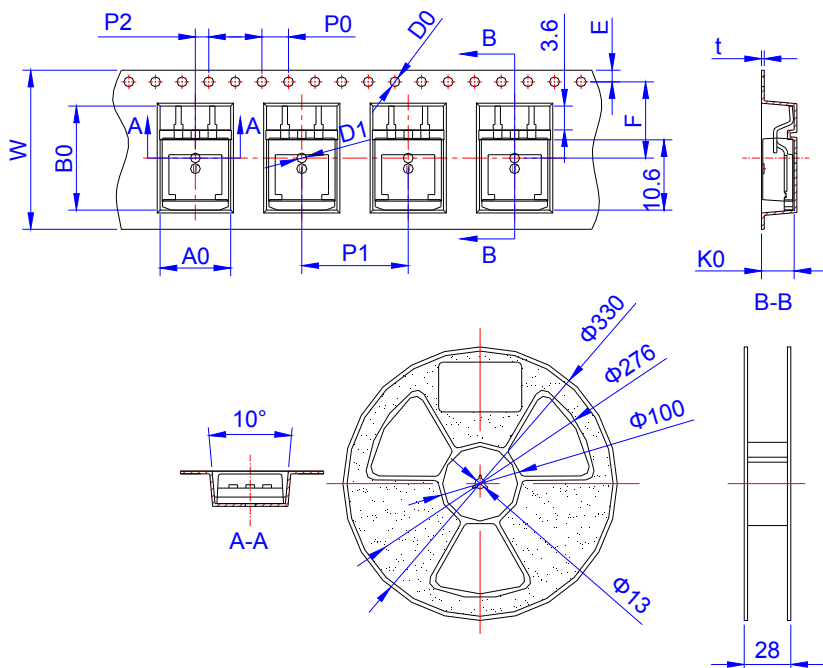
FOOTPRINT-TO-263 (dimensions in mm)



MARKING



TAPE AND REEL SPECIFICATION-TO-263



Ref.	Dimensions	
	Millimeters	Inches
W	24.00±0.30	0.945±0.012
E	1.75±0.10	0.069±0.004
F	11.50±0.10	0.453±0.004
D0	1.50±0.10	0.059±0.004
D1	1.50±0.10	0.059±0.004
P0	4.00±0.10	0.157±0.004
P1	16.00±0.10	0.630±0.004
P2	2.00±0.10	0.079±0.004
A0	10.90±0.10	0.429±0.004
B0	16.30±0.10	0.642±0.004
K0	4.90±0.10	0.193±0.004
t	0.40±0.05	0.016±0.002

PACKAGE INFORMATION

PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-263	TUBE	50	1,000	6,000
TO-263	TUBE	50	1,000	8,000
PACKAGE	OUTLINE	REEL (PCS)	PER CARTON (PCS)	TAPE & REEL
TO-263	TAPING	800	4,000	13 inch

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

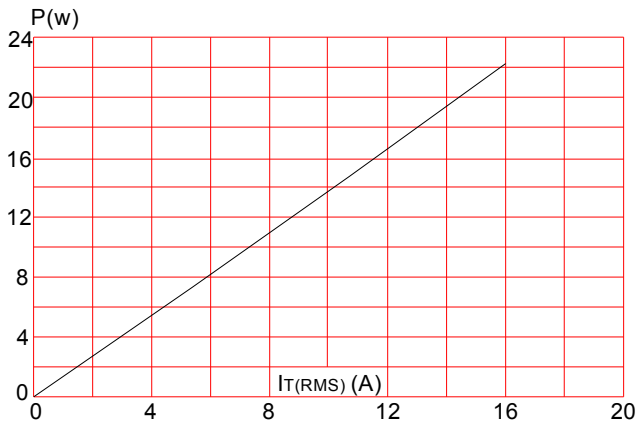


FIG.3: Surge peak on-state current versus number of cycles

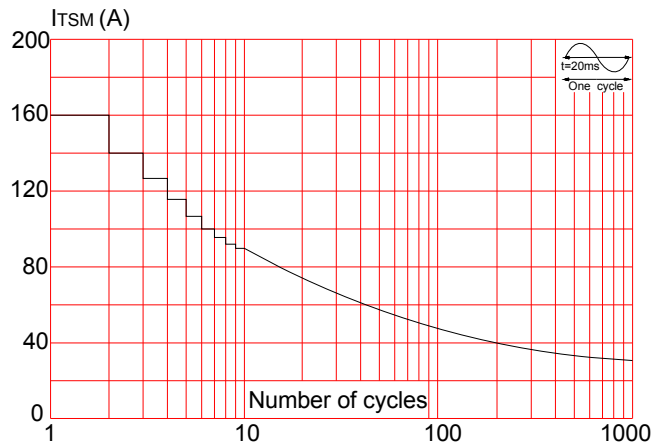


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($di/dt < 50\text{A}/\mu\text{s}$)

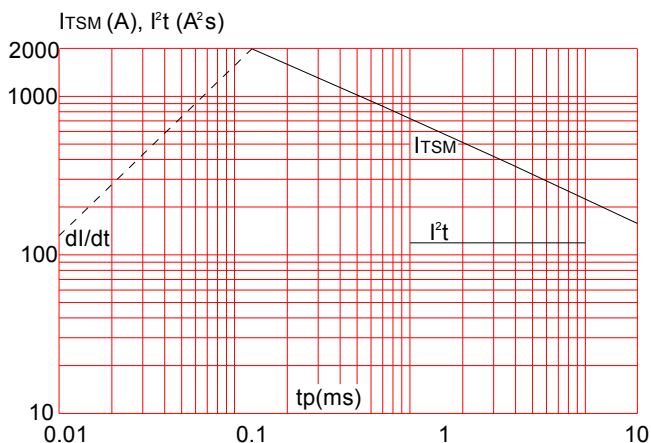


FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: $35\mu\text{m}$)(full cycle)

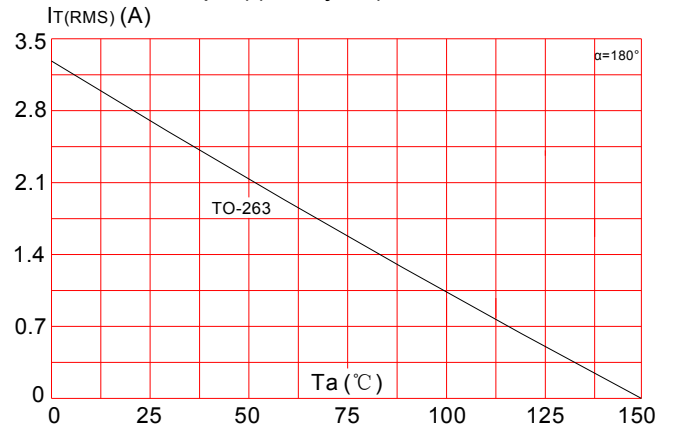


FIG.4: On-state characteristics (maximum values)

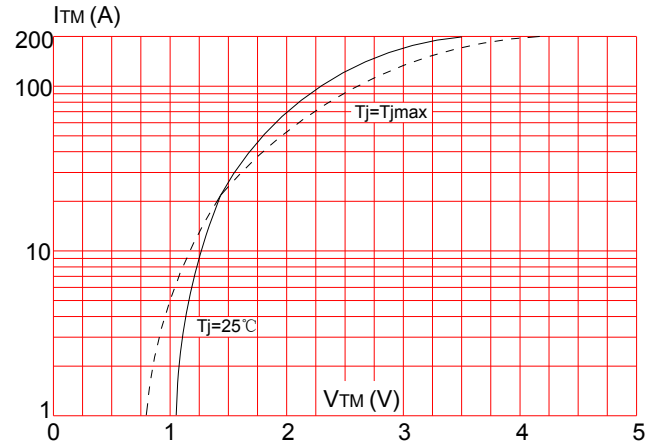
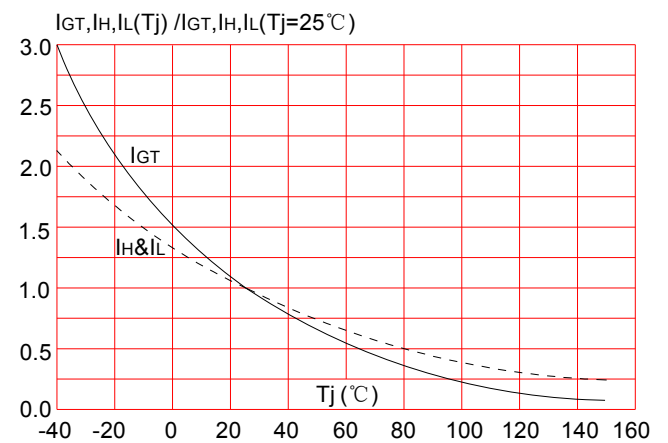
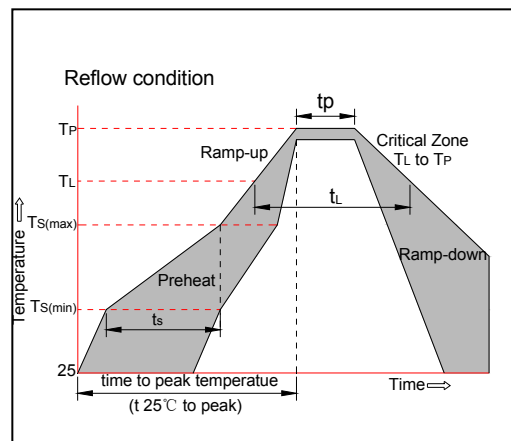


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L)to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquidus)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_p)		8 min. Max
Do not exceed		+260°C




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