

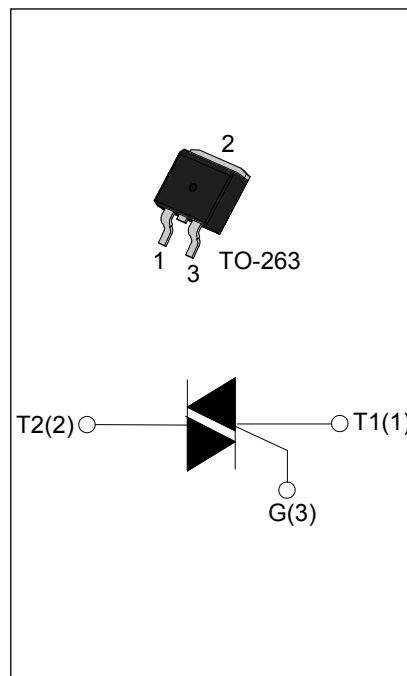


DESCRIPTION:

T20xxH triacs, with high ability to withstand the shock loading of large current, provide high dv/dt rate with strong resistance to electromagnetic interference. With high commutation performances, 3 quadrants products especially recommended for use on inductive load. Package TO-263 is RoHS compliant. (2011/65/EU)

MAIN FEATURES

Symbol	Value	Unit
T_j	150	$^{\circ}\text{C}$
$I_{T(RMS)}$	20	A
V_{DRM}/V_{RRM}	600/800	V



ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T_{stg}	-40-150	$^{\circ}\text{C}$
Operating junction temperature range		T_j	-40-150	$^{\circ}\text{C}$
Repetitive peak off-state voltage		V_{DRM}	600/800	V
Repetitive peak reverse voltage		V_{RRM}	600/800	V
RMS on-state current	TO-263 ($T_C=65^{\circ}\text{C}$)	$I_{T(RMS)}$	20	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)		I_{TSM}	200	A
I^2t value for fusing ($t_p=10\text{ms}$)		I^2t	200	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)		di/dt	100	$\text{A}/\mu\text{s}$
Peak gate current		I_{GM}	4	A
Average gate power dissipation		$P_{G(AV)}$	1	W
Peak gate power		P_{GM}	10	W

ELECTRICAL CHARACTERISTICS ($T_j=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Test Condition	Quadrant		Value		Unit
				T2035H	T2050H	
I_{GT}	$V_D=12\text{V}$ $R_L=33\Omega$	I - II -III	MAX	35	50	mA
V_{GT}		I - II -III	MAX	1.5		V
V_{GD}	$V_D=V_{DRM}$ $T_j=150^{\circ}\text{C}$ $R_L=3.3\text{K}\Omega$	I - II -III	MIN	0.2		V
I_L	$I_G=1.2I_{GT}$	I -III	MAX	50	70	mA
		II		80	100	
I_H	$I_T=100\text{mA}$		MAX	40	60	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=150^{\circ}\text{C}$		MIN	250	500	V/ μs
$(dV/dt)_c$	$(dI/dt)_c=8.8\text{A/ms}$ $T_j=150^{\circ}\text{C}$		MIN	7	15	V/ μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=28\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.55	V
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_j=150^{\circ}\text{C}$	2.5	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-263	2.8	$^{\circ}\text{C/W}$
$R_{th(j-a)}$	junction to ambient		45	

ORDERING INFORMATION

T	20	35	H	-6	E	-/
Triacs	20: $I_{T(RMS)}: 20A$	35: $I_{GT1-3} \leq 35mA$ 50: $I_{GT1-3} \leq 50mA$	H: $T_j = 150^\circ C$	6: $V_{DRM} / V_{RRM} \geq 600V$ 8: $V_{DRM} / V_{RRM} \geq 800V$	E: TO-263	Blank: Tube TR: Tape & Reel

MARKING

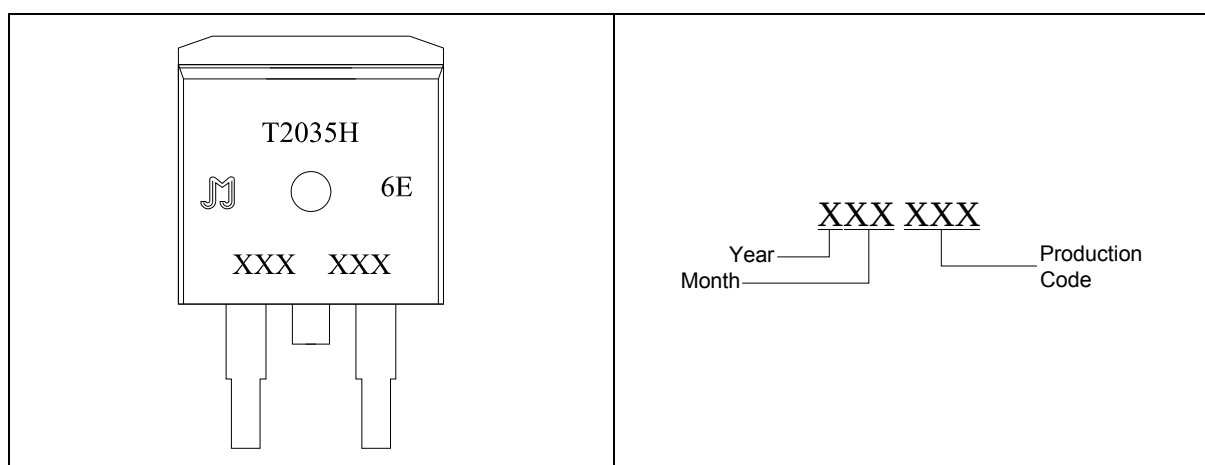


FIG.1: Maximum power dissipation versus RMS on-state current

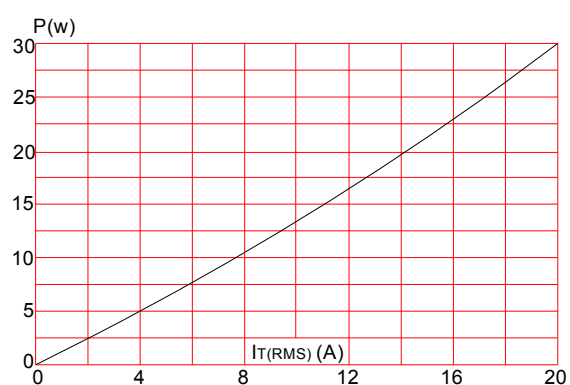


FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: 35μm)(full cycle)

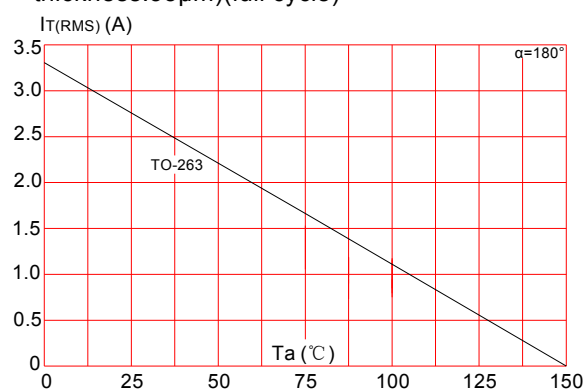


FIG.3: Surge peak on-state current versus number of cycles

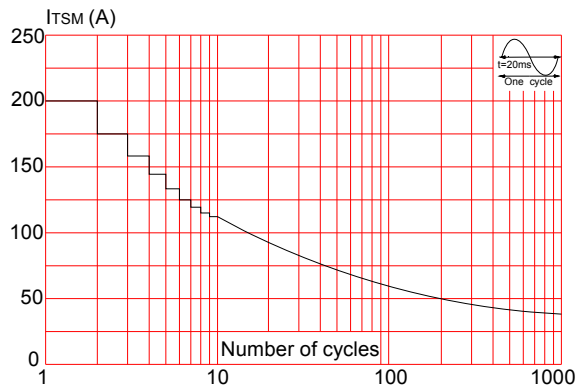


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($di/dt < 100\text{A}/\mu\text{s}$)

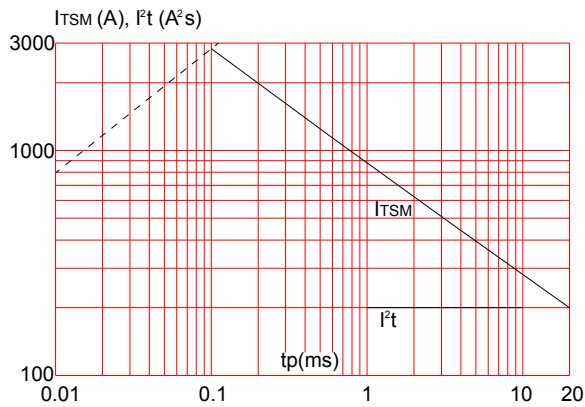


FIG.4: On-state characteristics (maximum values)

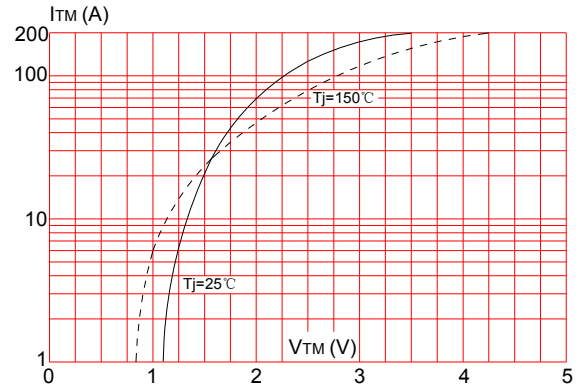
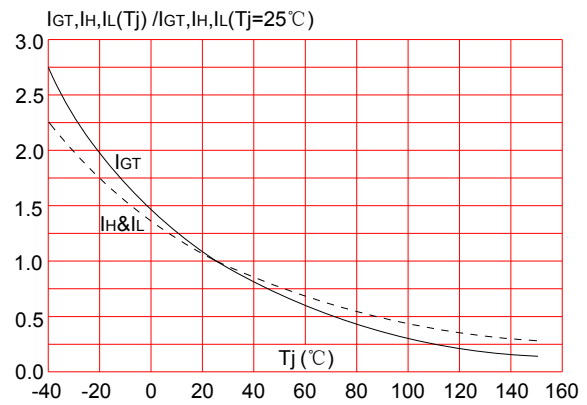
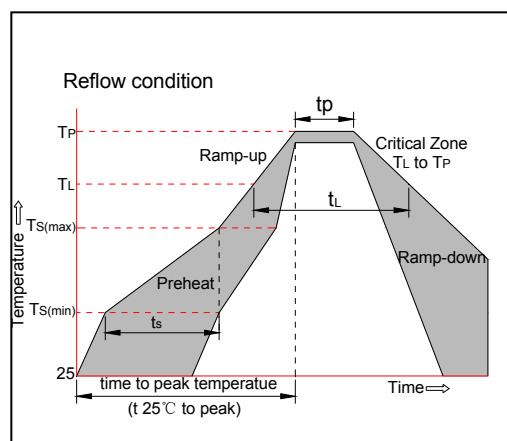


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



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



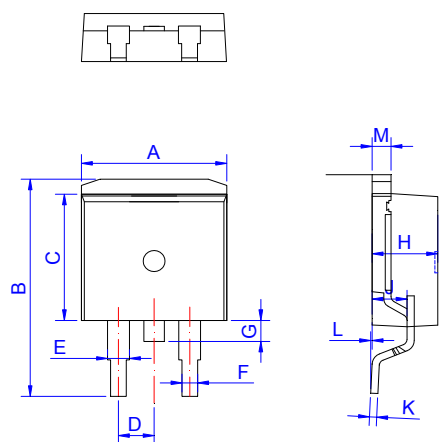
ORDERING INFORMATION

Order code	Voltage $V_{\text{DRM}}/V_{\text{RRM}}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
T2035H-6(8)E	600/800	35	TO-263	50	Tube
T2050H-6(8)E	600/800	50			
T2035H-6(8)E	600/800	35		800	Tape & Reel
T2050H-6(8)E	600/800	50			

Document Revision History

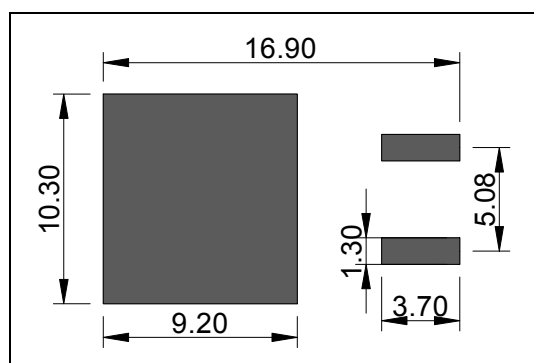
Date	Revision	Changes
March 16, 2019	3	Last update
May 14, 2021	4	Renew $I_L(II)$ value

PACKAGE MECHANICAL DATA



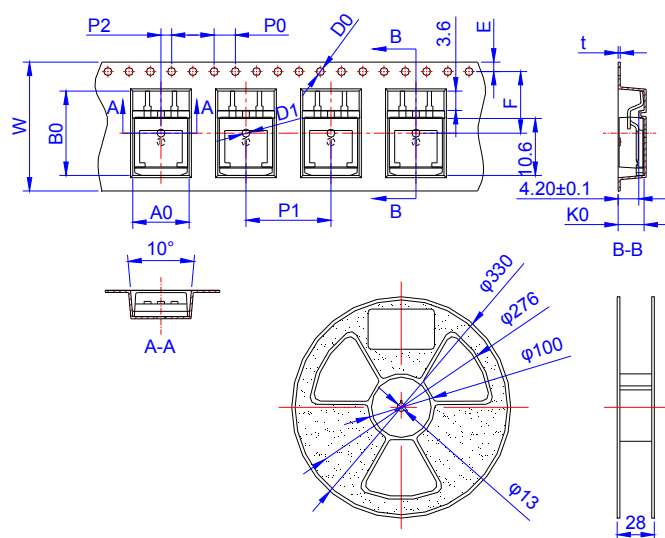
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
B	14.70		15.80	0.579		0.622
C	9.4		9.6	0.37		0.378
D		2.54			0.100	
E	1.20		1.40	0.047		0.055
F	0.75		0.85	0.029		0.033
G			1.75			0.069
H	4.40		4.70	0.173		0.185
J	2.30		2.70	0.091		0.106
K	0.38		0.55	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)



Technical drawing of a mechanical part, showing a top view and a side view. The top view includes dimensions: 530±0.5 (total width), 518 (width to the center of the hole), 12.9 (height of the hole), and 17.5 (height of the part). The side view includes dimensions: 7-0.2 (total height), 1.5 (width of the top flange), 0.6 (width of the bottom flange), 2.6 (width of the central section), and 10.4 (height of the central section). The drawing also shows a hole with a diameter of 3.0 and a tolerance of ±0.05.

PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-263	TUBE	50	1,000	5,000



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
W	23.70	24.00	24.30	0.933	0.945	0.957
E	1.65	1.75	1.85	0.065	0.069	0.073
F	11.40	11.50	11.60	0.449	0.453	0.457
D0	-	1.50	1.60	-	0.059	0.063
D1	-	1.50	1.60	-	0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	15.90	16.00	16.10	0.626	0.630	0.634
P2	1.90	2.00	2.10	0.075	0.079	0.083
A0	10.80	10.90	11.00	0.425	0.429	0.433
B0	16.20	16.30	16.40	0.638	0.642	0.646
K0	4.80	4.90	5.00	0.189	0.193	0.197
t	0.35	0.40	0.45	0.014	0.016	0.018

PACKAGE	OUTLINE	REEL (PCS)	PER CARTON (PCS)	TAPE & REEL
TO-263	TAPING	800	4,000	13 inch



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