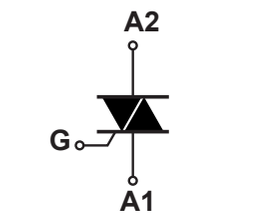
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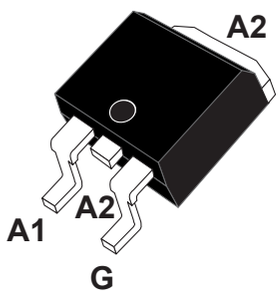
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T3035H-8G

Datasheet

30 A - 800 V D²PAK H-series Snubberless Triac





D²PAK

Features

- 30 A high current Triac
- 800 V symmetrical blocking voltage
- 150 °C maximum junction temperature T_j
- Three triggering quadrants
- High noise immunity / static dV/dt
- Robust dynamic turn-off commutation (dI/dt)c
- ECOPACK2 compliant component
- Molding resin UL94-V0 flammability certified

Applications

- Home automation Smart AC plug
- Water heater, room heater and coffee machine
- AC Induction and Universal Motor control
- Inrush current limiter in AC DC rectifiers
- Lighting and automation I/O control
- General purpose AC line load control

Product status link
T3035H-8G

Product summary	
$I_{T(RMS)}$	30 A
V_{DRM}/V_{RRM}	800 V
V_{DSM}/V_{RSM}	900 V
I_{GT}	35 mA

Description

Specifically designed to operate at 800 V and 150 °C, the T3035H-8G Triac provides an enhanced thermal management: this 30 A triac is the right choice for a compact drive of heavy AC loads and enables the heatsink size reduction.

Based on the ST Snubberless high temperature technology, it offers higher specified turn off commutation and noise immunity levels up to the T_j max.

The T3035H-8G safely optimizes the control of the hardest universal motors, heaters and inductive loads for industrial control and home appliances.

Available in D²PAK package, it is ideal for compact SMD designs on surface mount boards or insulated metal substrate or direct bond copper boards.

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1 Characteristics

Table 1. Absolute maximum ratings (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (full sine wave)	T_c = 121 °C	30	A
I_{TSM}	Non repetitive surge peak on-state current (full cycle, T_j initial = 25 °C)	t_p = 16.7 ms	283	A
		t_p = 20 ms	270	
I^2t	I^2t value for fusing	t_p = 10 ms	482	A^2s
dI/dt	Critical rate of rise of on-state current, I_G = 2 x I_{GT}, tr ≤ 100 ns, f = 100 Hz	T_j = 25 °C	100	A/µs
V_{DRM}/V_{RRM}	Repetitive peak off-state voltage		800	V
V_{DSM}/V_{RSM}	Non Repetitive peak off-state voltage	t_p = 10 ms, T_j = 25 °C	900	V
I_{GM}	Peak gate current	t_p = 20 µs, T_j = 150 °C	4	A
P_{GM}	Maximum gate power dissipation		5	W
$P_{G(AV)}$	Average gate power dissipation	T_j = 150 °C	1	W
T_{stg}	Storage temperature range		-40 to +150	°C
T_j	Operating junction temperature range		-40 to +150	°C

Table 2. Electrical characteristics (T_j = 25 °C, unless otherwise specified)

Symbol	Test conditions		Quadrants		Value	Unit
I_{GT}	V_D = 12 V, R_L = 30 Ω		I - II - III	Min.	5	mA
	V_D = 12 V, R_L = 30 Ω		I - II - III	Max.	35	mA
V_{GT}	V_D = 12 V, R_L = 30 Ω		I - II - III	Max.	1.3	V
V_{GD}	V_D = V_{DRM}, R_L = 3.3 kΩ	T_j = 150 °C	I - II - III	Max.	0.15	V
I_L	I_G = 1.2 x I_{GT}		I - III	Max.	75	mA
			II	Max.	90	mA
I_H (1)	I_T = 500 mA, gate open			Max.	60	mA
dV/dt (1)	V_D = 536 V, gate open		T_j = 150 °C	Min.	1500	V/µs
(dI/dt)c (1)	Without snubber network		T_j = 150 °C	Min.	25	A/ms

1. *For both polarities of A2 referenced to A1.*

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Table 3. Static characteristics

Symbol	Test conditions	T_j		Value	Unit
V_{TM} (1)	I_T = 42 A, t_p = 380 µs	25 °C	Max.	1.55	V
V_{TO} (1)	Threshold voltage	150 °C	Max.	0.83	V
R_D (1)	Dynamic resistance	150 °C	Max.	16	mΩ
I_{DRM}/I_{RRM}	V_{DRM} = V_{RRM} = 800 V	25 °C	Max.	5	µA
		150°C		8.5	mA
	V_{DRM} = V_{RRM} = 400 V, peak voltage	150 °C	Max.	3.6	mA

1. *For both polarities of A2 referenced to A1.*

Table 4. Thermal resistance

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case (AC)	Max.	0.8	°C/W

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1.1 Characteristics (curves)

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

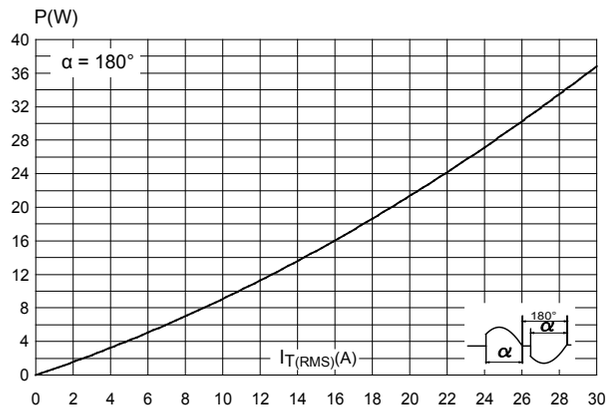


Figure 2. On-state RMS current versus case temperature

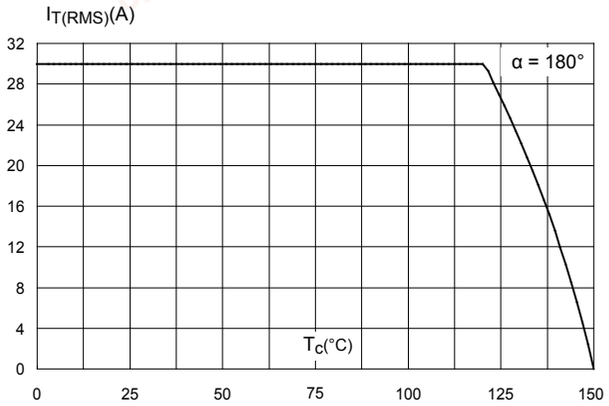


Figure 3. On-state RMS current versus ambient temperature (free air convection)

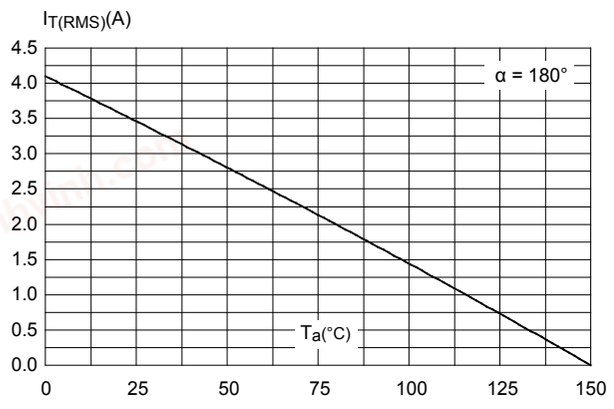
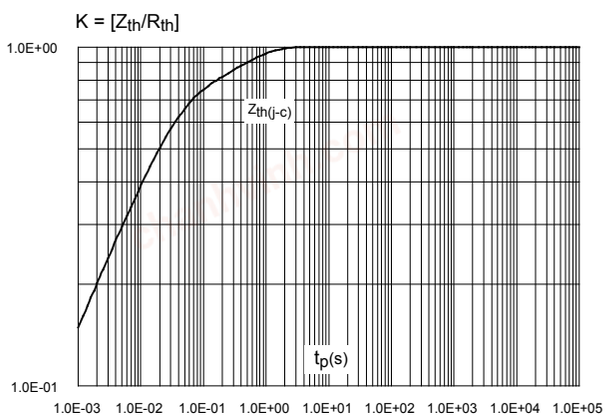


Figure 4. Relative variation of thermal impedance versus pulse duration



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Figure 5. Relative variation of gate trigger voltage and current versus junction temperature (typical values)

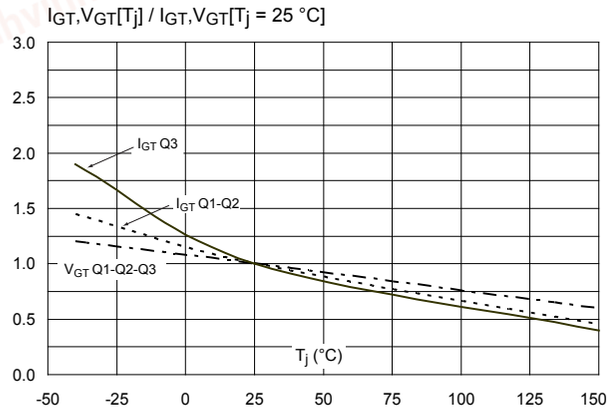


Figure 6. Relative variation of holding current and latching current versus junction temperature (typical values)

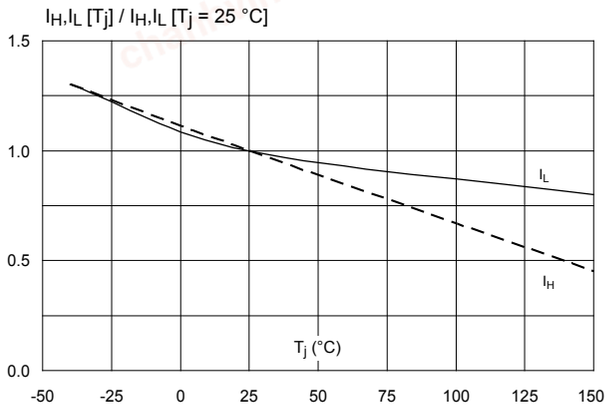


Figure 7. Surge peak on-state current versus number of cycles

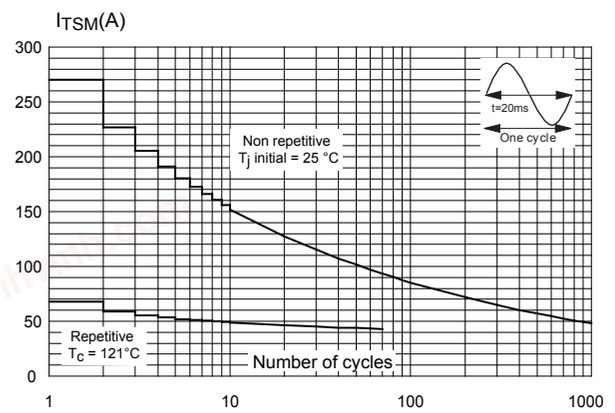


Figure 8. On-state characteristics (maximum values)

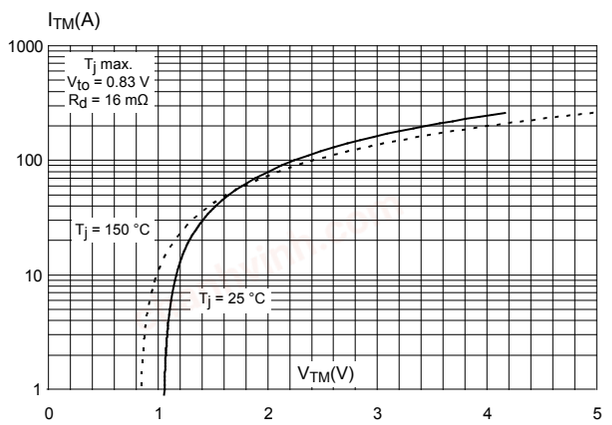


Figure 9. Relative variation of static dV/dt immunity versus junction temperature

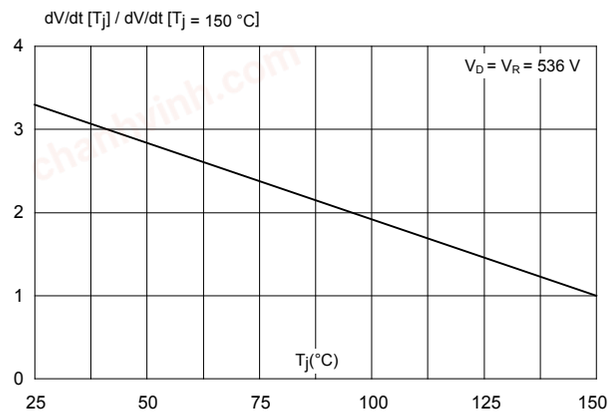
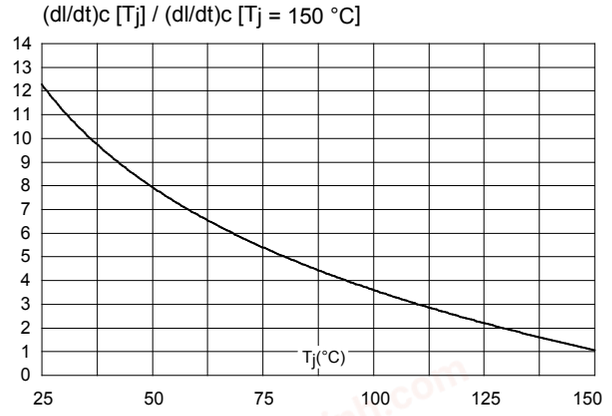


Figure 10. Relative variation of critical rate of decrease of main current versus junction temperature



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Figure 11. Relative variation of leakage current versus junction temperature for different values of blocking voltage

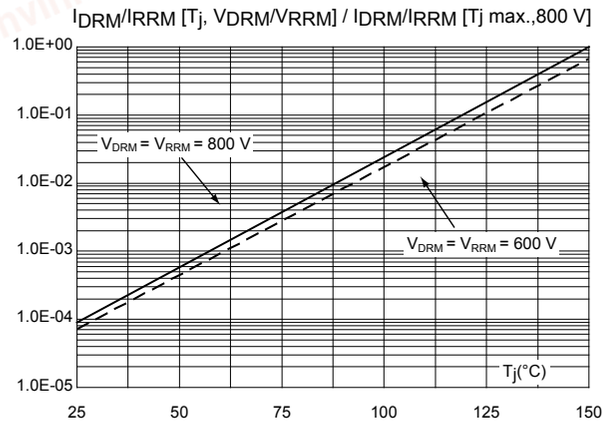
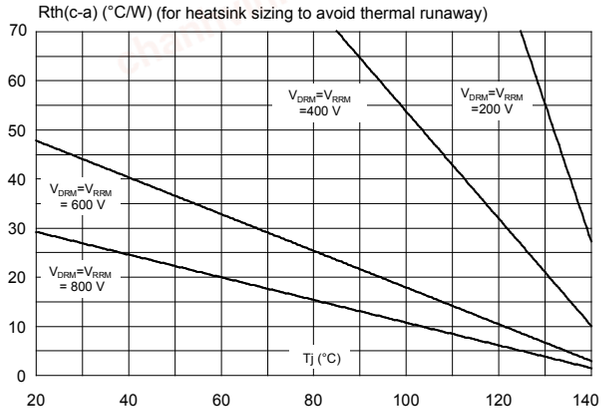


Figure 12. Recommended maximum case-to-ambient thermal resistance versus ambient temperature for different peak off-state voltages



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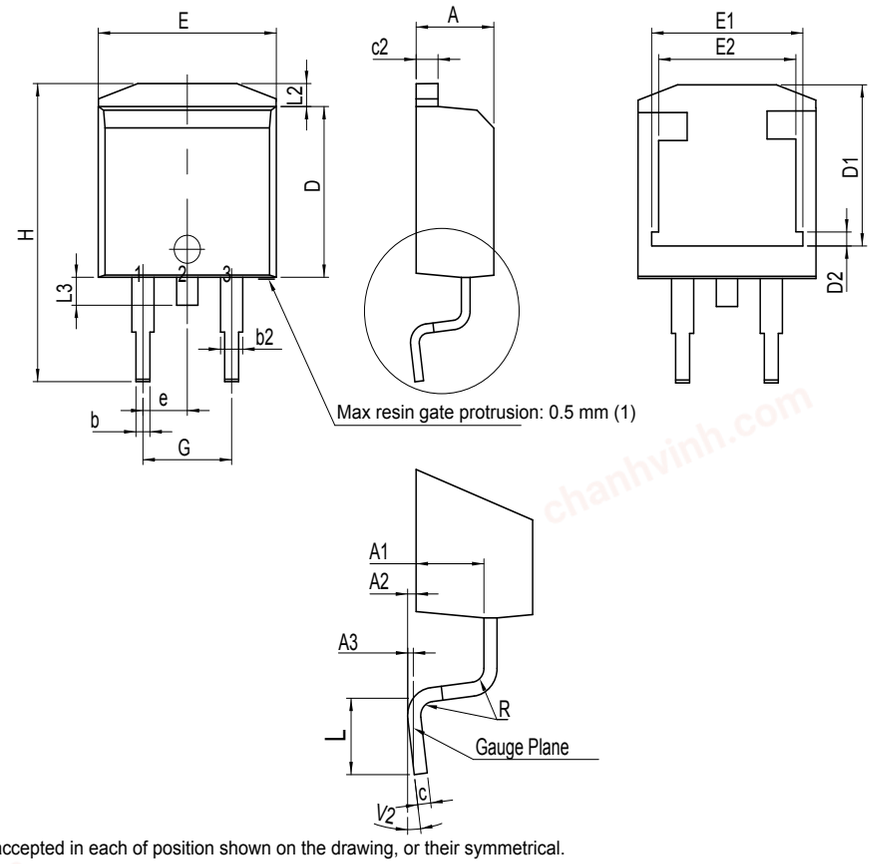
2 Package information

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK packages, depending on their level of environmental compliance. ECOPACK specifications, grade definitions and product status are available at: www.st.com. ECOPACK is an ST trademark.

2.1 D²PAK package information

- ECOPACK®2 compliant
- Lead-free package leads finishing
- Molding compound resin is halogen-free and meets UL standard level V0

Figure 13. D²PAK package outline



(1) Resin gate is accepted in each of position shown on the drawing, or their symmetrical.

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Table 5. **D²PAK package mechanical data**

Ref.	Dimensions					
	Millimeters			Inches[1]		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.30		4.60	0.1693		0.1811
A1	2.49		2.69	0.0980		0.1059
A2	0.03		0.23	0.0012		0.0091
A3		0.25			0.0098	
b	0.70		0.93	0.0276		0.0366
b2	1.25		1.7	0.0492		0.0669
c	0.45		0.60	0.0177		0.0236
c2	1.21		1.36	0.0476		0.0535
D	8.95		9.35	0.3524		0.3681
D1	7.50		8.00	0.2953		0.3150
D2	1.30		1.70	0.0512		0.0669
e	2.54			0.10000		
E	10.00		10.28	0.3937		0.4047
E1	8.30		8.70	0.3268		0.3425
E2	6.85		7.25	0.2697		0.2854
G	4.88		5.28	0.1921		0.2079
H	15		15.85	0.5906		0.6240
L	1.78		2.28	0.0701		0.0898
L2	1.27		1.40	0.0500		0.0551
L3	1.40		1.75	0.0551		0.0689
R		0.40			0.0157	
V2[2]	0°		8°	0°		8°

1. *Dimensions in inches are given for reference only*
2. *Degrees*

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Figure 14. D²PAK recommended footprint (dimensions are in mm)

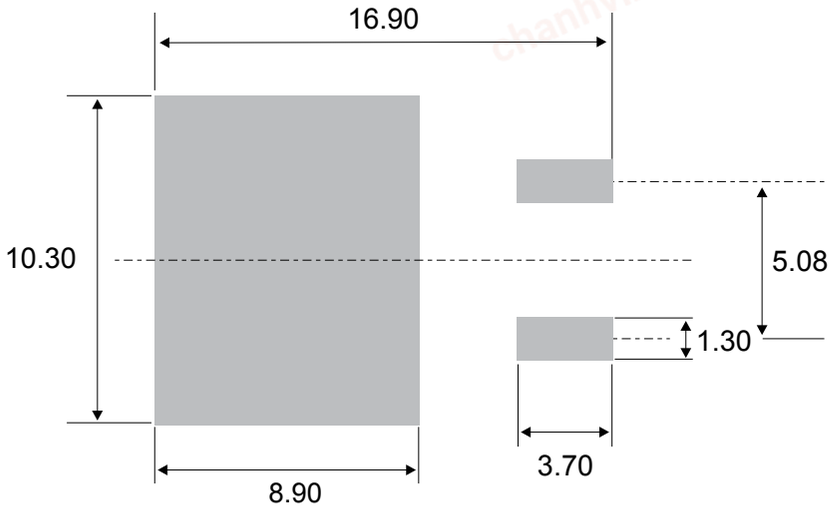
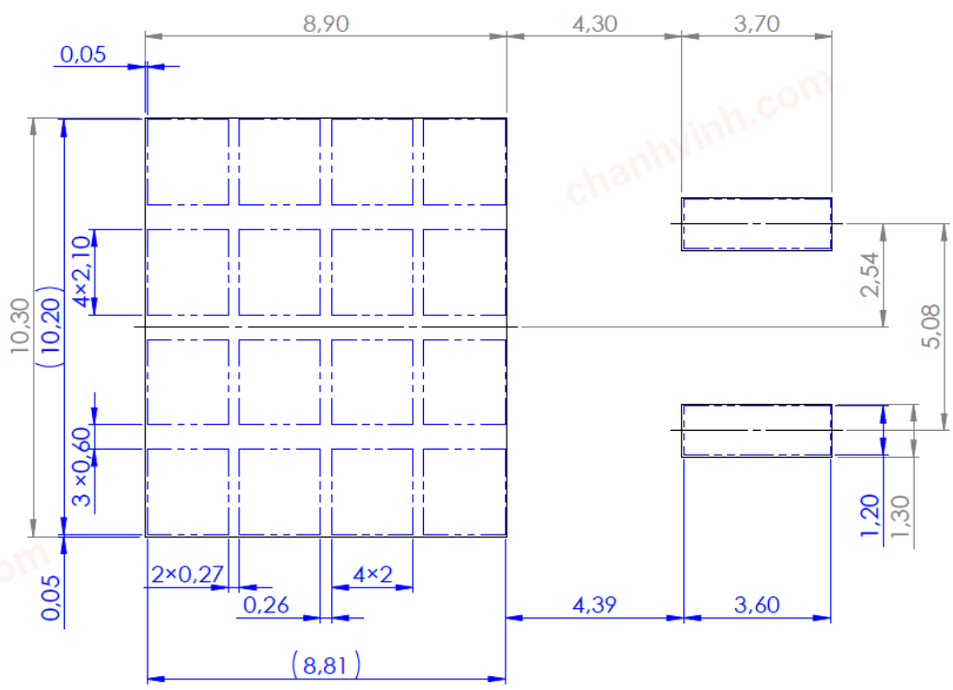


Figure 15. D²PAK stencil definitions(dimensions are in mm)



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3 Ordering information

Figure 16. **Ordering information scheme**

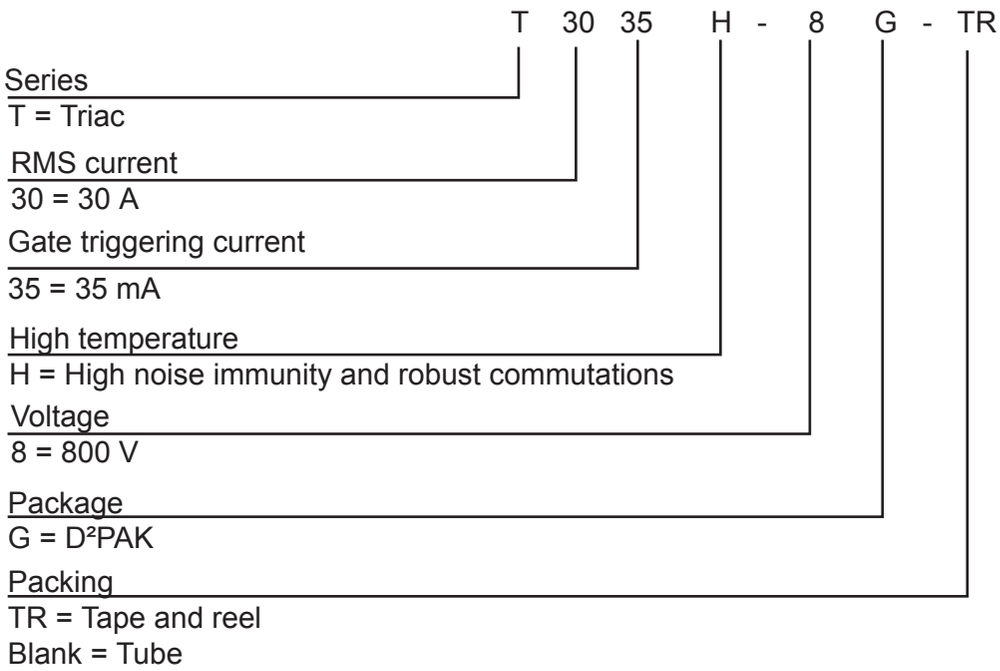


Table 6. **Ordering information**

Marking	Package	Weight	Base qty.	Delivery mode
T3035H-8G-TR	D²PAK	1.6 g	2500	Tape and reel 13”
T3035H-8G	D²PAK	1.6 g	50	Tube

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Revision history

Table 7. **Document revision history**

Date	Version	Changes
27-Jul-2018	1	Initial release.
25-Jun-2019	2	Minor text changed.

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