DT25T High Temperature Series TRIACs

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SILICON BIDIRECTIONAL THYRISTORS

General description

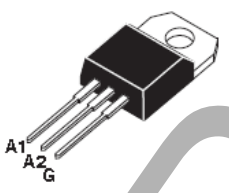
These products TRAIC are packages for third quadrant in 25A, DT25T are high commutation performance without snubber circuit. It can be controlled by phase angle trigger or on/off trigger.

FEATURES

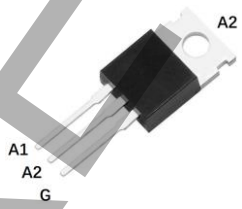
- Passivated die for reliability and uniformity
- Three-quadrant triggering TRIAC, Over 800V V_{DRM}/V_{RRM}
- 150°C Tj temperature.
- Without snubber circuit.
- "Green" molding compound, UL flammability classification 94V-0, (No Br. Sb. Cl)
- Lead free in RoHS II 2015/863/EU compliant
- Moisture sensitivity meets industry standard IPC/JEDEC J-STD-020

APPLICATIONS

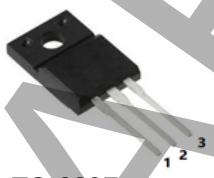
- General purpose AC switch control
- Control loads in Motor, Fan, and Pump.
- Solenoid drivers
- LED Dimming
- Inrush current limiting circuits



ITO-220

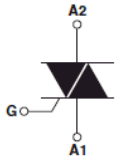


TO-220



TO-220F

D2PAK



PIN ASSIGNMENT	
1	Main Terminal 1 (A1)
2	Main Terminal 2 (A2)
3	Gate

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ELECTRICAL CHARACTERISTICS (Tj = 25°C, unless otherwise specified.)

Absolute Ratings

PARAMETER	SYMBOL	VALUE	UNIT
Peak repetitive off-state voltage (Tj = -40 to 125°C, Full sine wave, 50 to 60 Hz; Gate open) (Note 1)	V_{DRM} V_{RRM}	800	V
On-stage RMS current (Full sine wave, T_C = 100°C)	$I_{T(RMS)}$	25	A
Peak non-repetitive surge current (one full cycle 60 H_Z, Tj = 25°C)	I_{TSM}	190	A
Circuit fusing consideration (t = 8.3ms)	I^2T	149.5	A^2S
Operating junction temperature range	Tj	-40 to +150	°C
Storage temperature range	T_{STG}	-40 to +150	°C

Note :

(1) V_{DRM} and V_{RRM} for all types can be applied on a continuous basis. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.

Version 04, Oct-2020

Thermal Characteristics

PARAMETER	SYMBOL	VALUE		UNIT
Thermal resistance from junction to case (1)	Rth(j-c)	Max	10	°C/W
Junction to ambient (DC) (1)	Rth(j-a)	Typ	50	
Maximum lead temperature for soldering purposes (1/8" form case for 10 seconds)	T_L	Max	260	°C

Note 1: Without heatsink

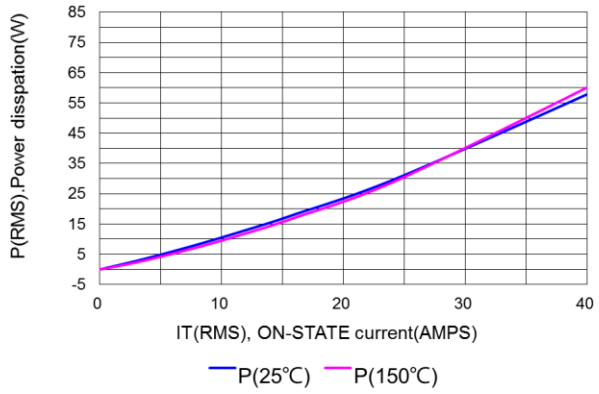
Static Characteristics

PARAMETER		SYMBOL	MIN.	TYP.	MAX.	UNIT
Threshold Voltage (Tj = 150°C)		V_{to}	--	--	0.95	V
Dynamic resistors (Tj = 150°C)		R_d	--	--	15	mΩ
Peak repetitive forward or reverse blocking current (V_{AK} = rated V_{DRM} and V_{RRM}, gate open)	Tj = 25°C	I_{DRM} I_{RRM}	--	--	5	uA
	Tj = 125°C		--	--	1	mA
	Tj = 150°C				3	

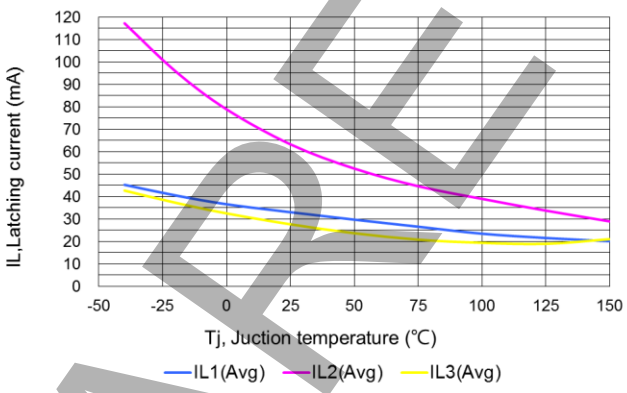
ON Characteristics

PARAMETER	SYMBOL	DT25T35	DT25T50		UNIT
Peak forward on-state voltage (I_{TM} = 25 A @ Tj = 25°C)	V_{TM}	1.5	1.5	Max	V
V_D= V_{DRM} , R_L=100Ω, Tj=125°C	V_{GD}	0.25	0.25	Min	V
Gate trigger current (V_{AK} = 12V, R_L=100Ω)	I_{GT1} I_{GT2} I_{GT3}	35 35 35	50 50 50	Max	mA
Gate trigger voltage (V_{AK} = 12V, R_L=100Ω)	V_{GT1} V_{GT2} V_{GT3}	1	1	Max	V
Holding current (VAK = 12V, R_L=100Ω)	I_{H1} I_{H3}	50	50	Max	mA
Latching current (V_{AK} = 12V, R_L=100Ω)	I_{L1} I_{L2} I_{L3}	50 80 50	80 80 80	Max	mA
Critical rate of rise of on-state current, Tj = 125°C	dI/dt(s)	50	50	Max	A/us
VD = 67% VDRM, gate open, Tj = 125°C	dV/dt	2000	2000	Max	V/us
Without snubber, Tj = 125°C	dI/dt(c)	10	10	Max	A/ms
Tj=125°C, 20V/dt	dI/dt(c)	35	35	Max	A/ms

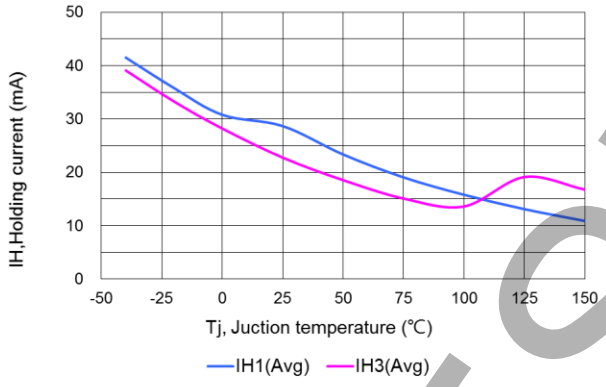
Power disspation VS ON-STATE current



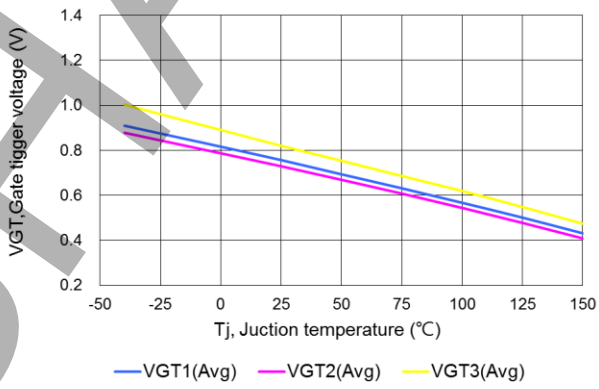
Typical latch current V.S. juction temperature



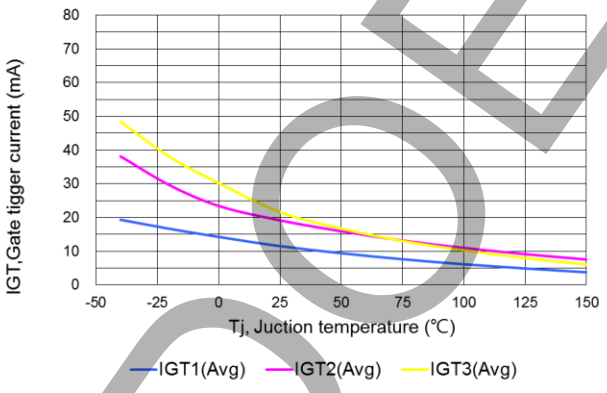
Typical holding current V.S. juction temperature



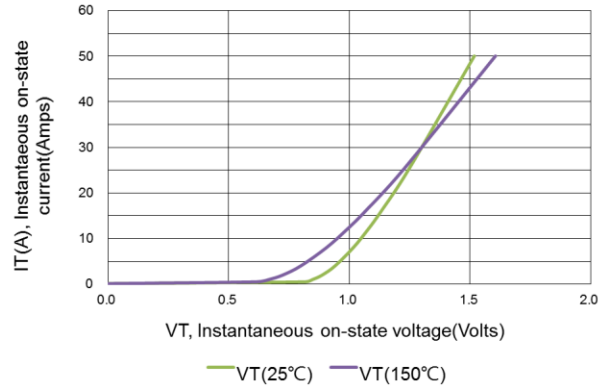
Typical gate tigger voltage V.S. juction temperature



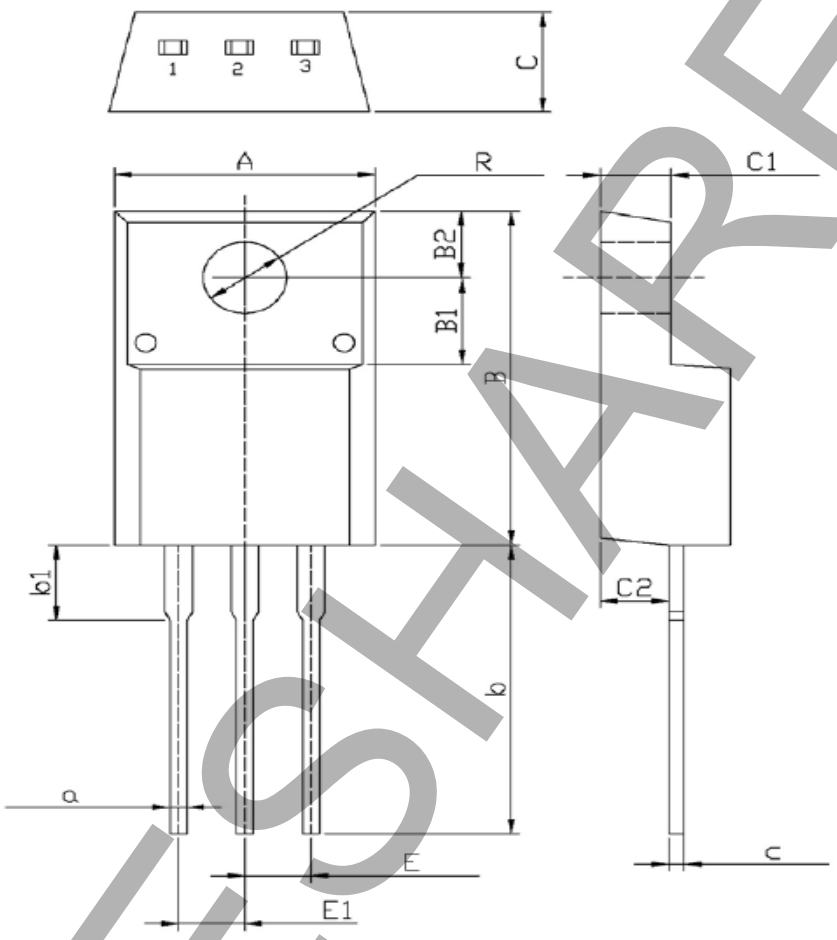
Typical gate trigger current V.S. juction temperature



VTM - IT

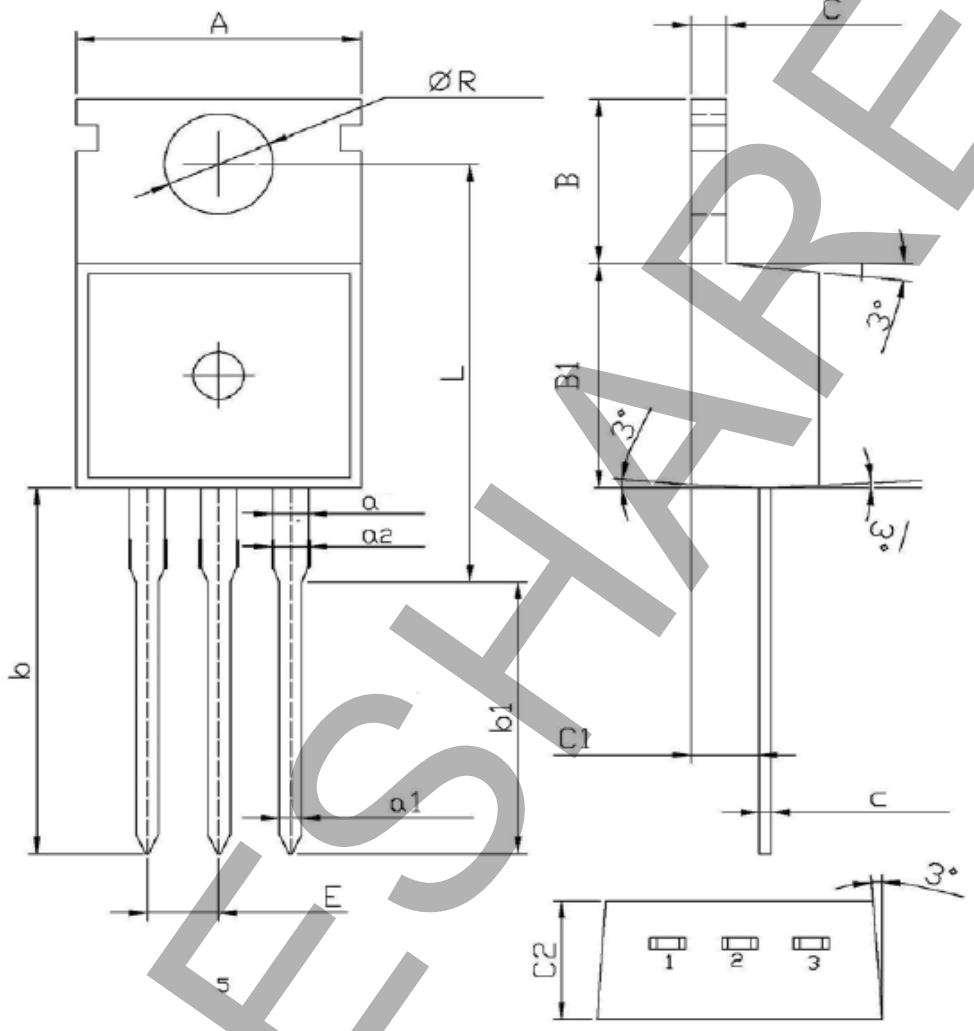


TO-220F Plastic Package



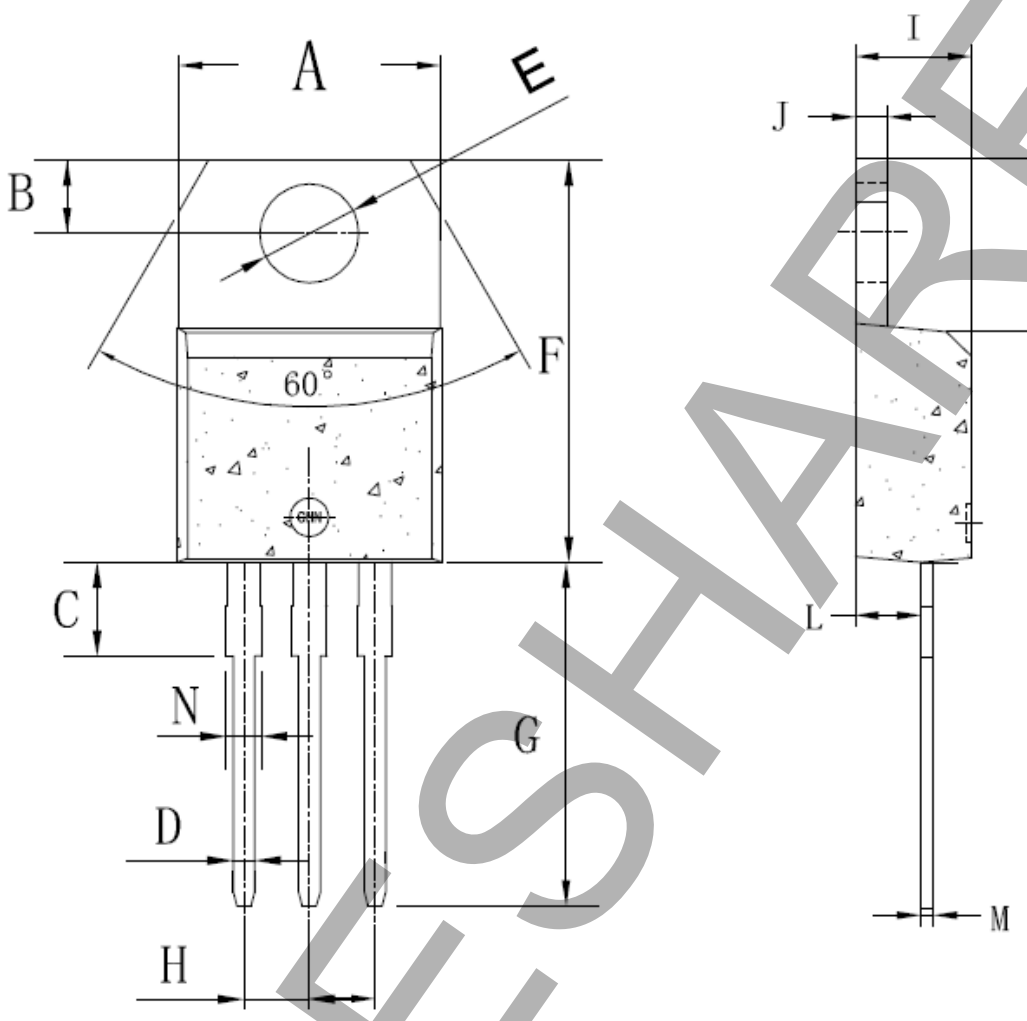
DIM	Millimeters		DIM	Millimeters		DIM	Millimeters	
	Min	Max		Min	Max		Min	Max
A	9.7	10.3	E	2.29	2.79	b	12.5	13.5
B	14.7	15.3	E1	2.29	2.79	b1	2.9	3.9
C	4.3	4.7	B1	3.8	4.0	a	0.55	0.75
C1	2.5	2.9	B2	2.9	3.1	c	0.5	0.7
C2	2.5	2.7	R	3.0	3.4			

TO-220 Plastic Package



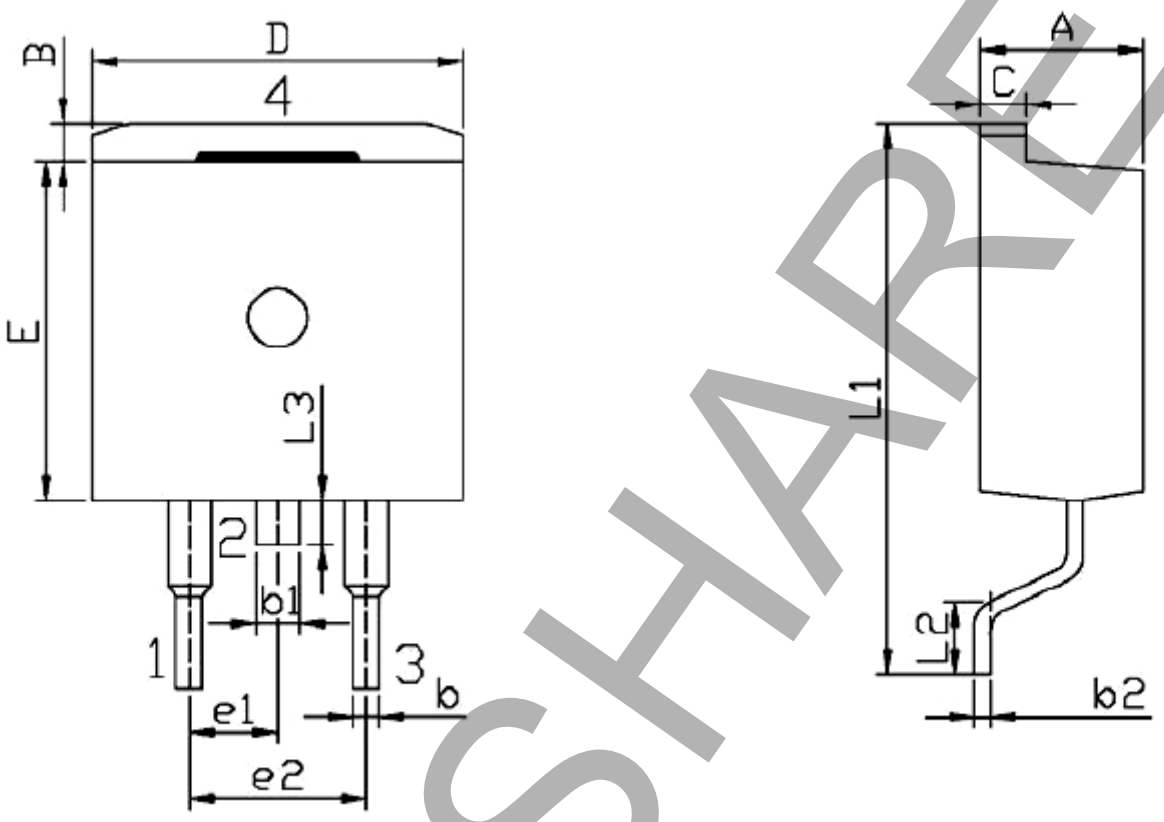
DIM	Millimeters		DIM	Millimeters		DIM	Millimeters	
	Min	Max		Min	Max		Min	Max
A	9.7	10.4	a	1.22	1.32	a2	1.18	1.45
B	6.13	6.82	a1	0.7	0.92	C2	4.3	4.71
C	1.2	1.42	b1	9.6	10.6	E	2.34	2.74
B1	9.0	9.4	c	0.38	0.65	R	3.55	3.78
b	12.6	13.6	C1	2.2	2.75	L	15.7	16.14

ITO-220 Plastic Package



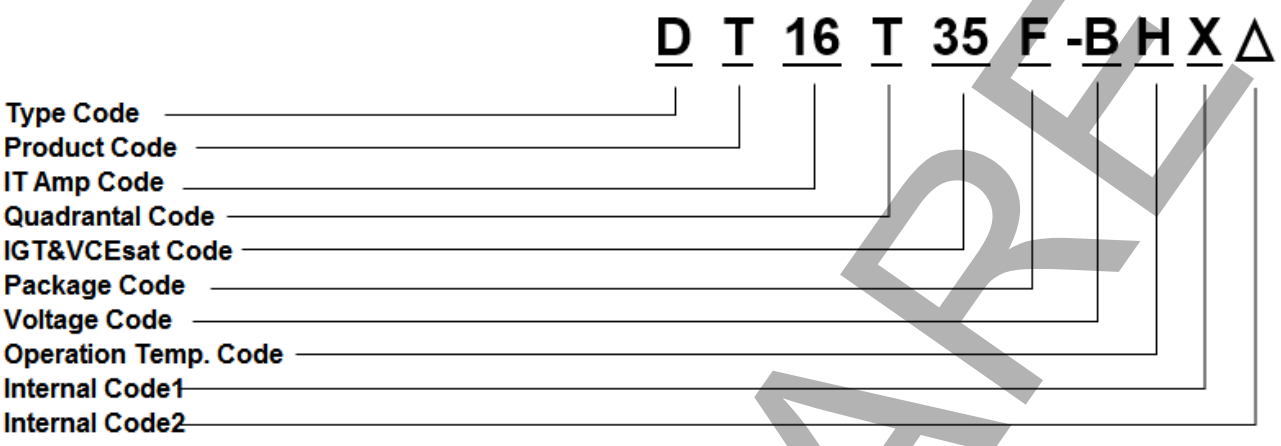
DIM	Millimeters		DIM	Millimeters		DIM	Millimeters	
	Min	Max		Min	Max		Min	Max
A	9.8	10.4	E	3.75	3.95	I	4.38	4.61
B	2.65	3.1	F	14.8	16.1	J	1.15	1.36
C	2.8	4.2	G	13.05	13.6	K	5.85	6.82
D	0.7	0.92	H	2.4	2.7	L	2.35	2.75
M	0.35	0.65	N	1.18	1.42			

D2PAK Plastic Package



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.30	4.70	E	9.00	9.40
B	1.00	1.40	e1	2.34	2.74
b	0.70	0.90	e2	4.88	5.28
b1	1.15	1.35	L1	15.00	16.00
b2	0.40	0.60	L2	2.24	2.84
C	1.20	1.40	L3	1.20	1.60
D	9.80	10.20			

Ordering information scheme



Type Code:	Doeshare Standar products
Product Code:	T for Triac series
IT Amp Code:	16 for 16A, 1 for 1A
Quadrantal Code:	T for 3Q, F for 4Q
IGT&VCEsat Code:	35 means Igt 35mA, 5 means Igt 5mA
Package Code:	A=>TO-92, C=>TO-126, D=> DPAK, E=>D2PAK, F=> TO-220F, G=>SOT-223 M=>ITO-3P, P=>TO-3P, T=> TO-220, Y=>TO251
Voltage Code:	A=> 600V, B=> 800V, C=> 1000V
Operation Temp Code:	None=>125°C, H=>150°C

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