DT40T Series TRIAC

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SILICON BIDIRECTIONAL THYRISTORS

General description

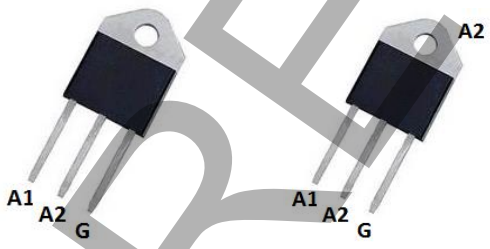
These products are packages for third quadrant in 40A TRIACs, DT40T are high commutation performance without snubber circuit. It can be controlled by phase angle trigger or on/off trigger.

FEATURES

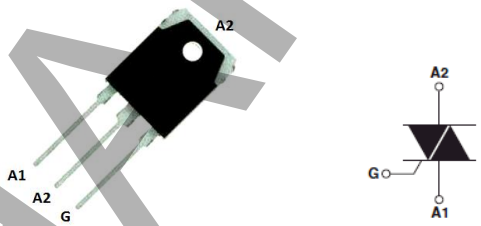
- Passivated die for reliability and uniformity
- Three-quadrant triggering TRIAC, Over 800V V_{DRM}/V_{RRM}
- 125°C operation temperature.
- Without snubber circuit.
- "Green" molding compound, UL flammability classification 94V-0, (No Br. Sb. Cl)
- Lead free in RoHS II 2015/863/EU compliant
- Moisture sensitivity meets industry standard IPC/JEDEC J-STD-020

APPLICATIONS

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



ITO-3P TO-3P



TO-3PL

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

DT40T Series TRIAC 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)	$I_{T(RMS)}$	40	A
Peak non-repetitive surge current (one full cycle 60 H_Z, Tj = 25°C)	I_{TSM}	400	A
Circuit fusing consideration (t = 10ms)	I^2T	664	A^2S
Operating junction temperature range	Tj	-40 to +125	°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.

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Thermal Characteristics

PARAMETER	SYMBOL	VALUE		UNIT
Thermal resistance from junction to case (1)	Rth(j-c)	Max	8	°C/W
Junction to ambient (DC) (1)	Rth(j-a)	Typ	60	
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 = 125°C)		V_{to}	--	--	0.9	V
Dynamic resistors (Tj = 125°C)		R_d	--	--	18	mΩ
Peak repetitive forward or reverse blocking current (V_{AK} = rated V_{DRM} and V_{RRM}, gate open)	Tj = 25°C	I_{DRM}	--	--	5	uA
	Tj = 125°C	I_{RRM}	--	--	3	mA

ON Characteristics

PARAMETER	SYMBOL	DT40T35	DT40T50		UNIT
Peak forward on-state voltage (I_{TM} = 40 A @ Tj = 25°C)	V_{TM}	1.5	1.5	Max	V
V_D= V_{DRM} , R_L=100Ω, Tj=125°C	V_{GD}	0.3	0.3	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

Dynamic Characteristics

PARAMETER	SYMBOL	DT40T35	DT40T50	MAX.	UNIT
Critical rate of rise of off-stage voltage (V_{AK} = 67% rated V_{DRM} , Tj = 150°C, gate open)	dv/dt	2000	3000	--	V/us

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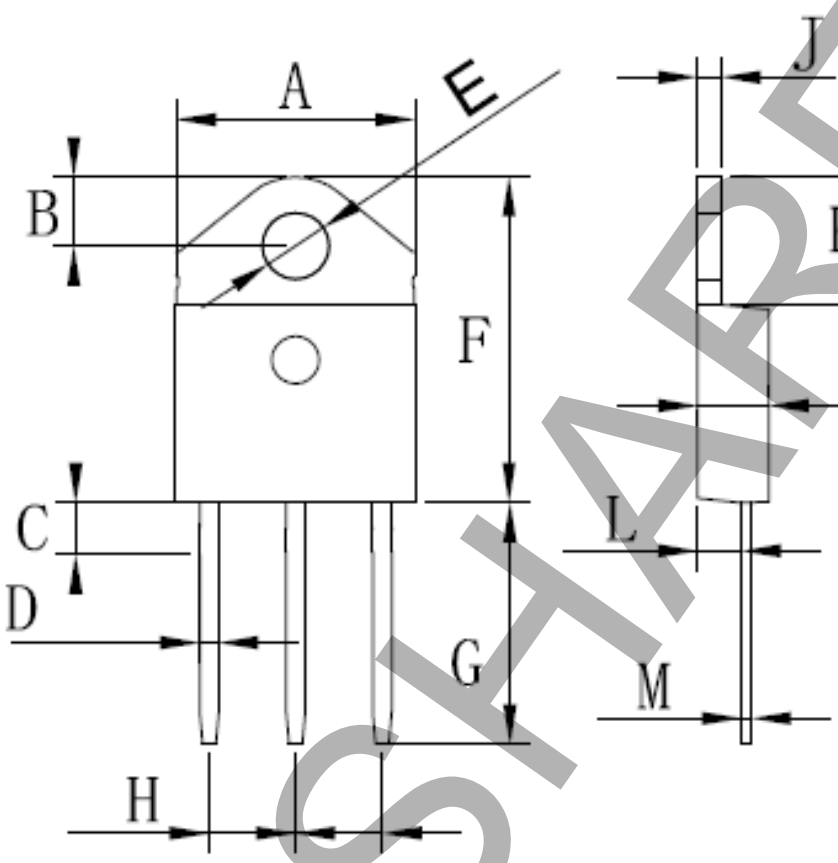
ITO-3P & TO-3P Plastic Package



DIM	Millimeters		DIM	Millimeters		DIM	Millimeters	
	Min	Max		Min	Max		Min	Max
A	14.9	15.35	E	4.12	4.31	I	4.38	4.65
B	4.1	4.65	F	20.21	20.75	J	1.42	1.62
C	2.5	3.2	G	15.02	15.55	K	7.85	8.22
D	1.12	1.32	H	5.35	5.62	L	2.71	2.92
M	0.52	0.68						

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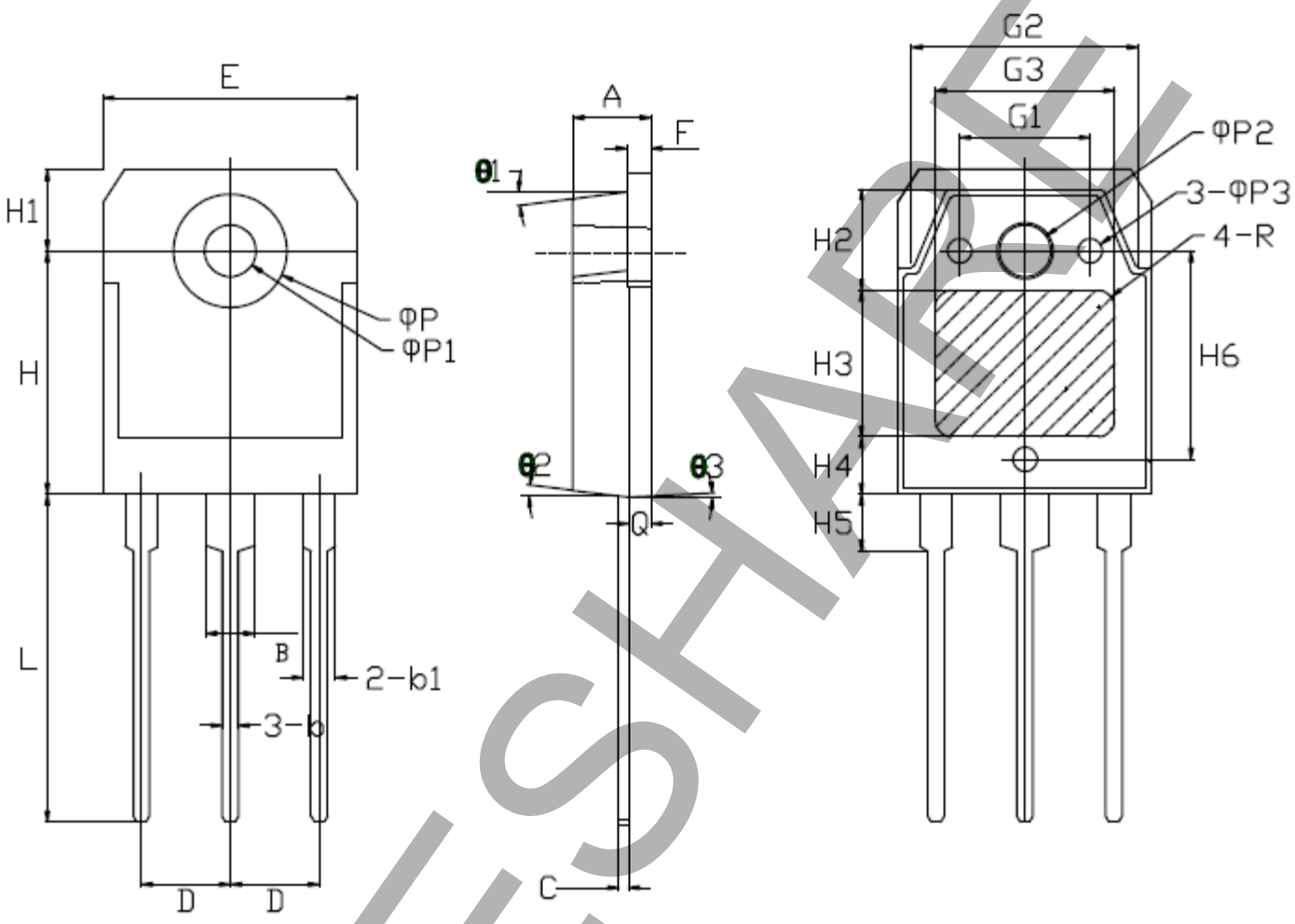
TO-3PL & ITO-3PL Plastic Package



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Item	Unit mm		
	Min	Nor	Max
*A	4.75	4.80	4.85
*B	2.95	3.00	3.05
*C	0.585	0.600	0.615
*D	5.35	5.45	5.55
*E	15.55	15.60	15.65
*F	1.508	1.500	1.492
G1	7.90	8.00	8.10
G2	13.50	13.60	13.70
G3	10.90	11.00	11.10
b		1.00	
*b1		2.00	
*L	20.00	20.10	20.20
*H	14.80	14.90	15.00
*H1	4.90	5.00	5.10
H2	6.10	6.20	6.30
H3	8.90	9.00	9.10
H4	3.40	3.50	3.60
H5	2.90	3.00	3.10
H6	12.66	12.76	12.86
ΦP		7.00	
*ΦP1		3.20	
*ΦP2		3.50	
ΦP3		1.50	
θ1	6°	7°	8°
θ2	6°	7°	8°
θ3	2°	3°	4°
*Q	1.33	1.38	1.43
R		1.00	

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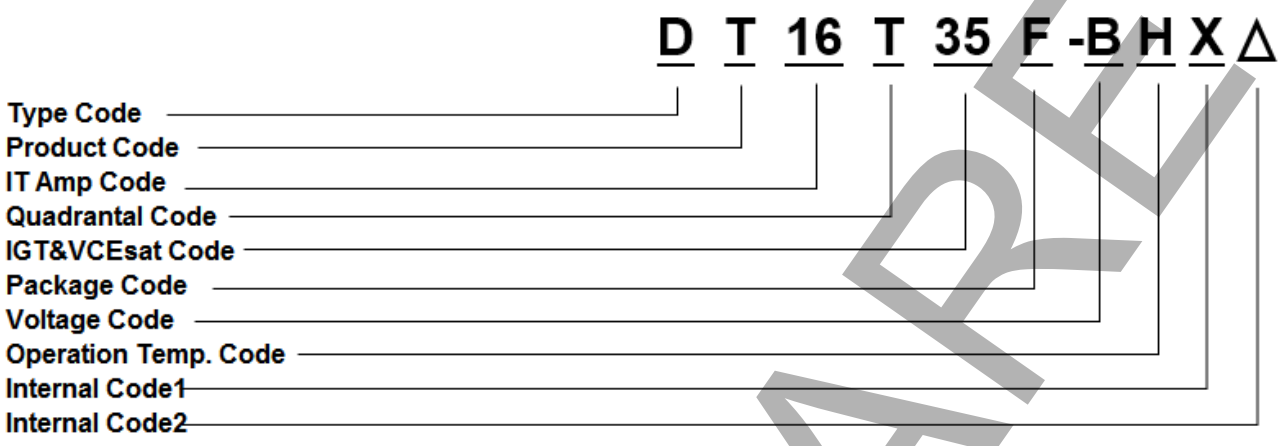
Ordering information scheme



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, X=> TO-3P-L
Voltage Code:	A=> 600V, B=> 800V, C=> 1000V
Operation Temp Code:	None=>125°C, H=>150°C

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