

DT16T Standard TRIACS SILICON BIDIRECTIONAL THYRISTORS

General description

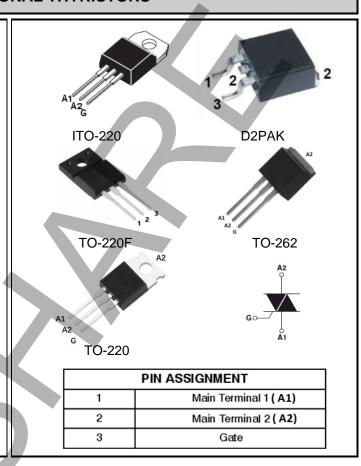
These products 16A TRAIC are packages for third quadrant, DT16T are high commutation performance without snubber circuit. It can be controlled by phase angle trigger or on/off trigger.

FEATURES

- · Passivated die for reliability and uniformity
- Three-quadrant triggering TRIAC, Over 800V VDRM/VRRM
- 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
- LED Dimming
- · Inrush current limiting circuits



DT16T Standard TRIACs

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

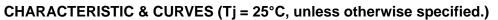
Absolute Ratings

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)}	16	А
Peak non-repetitive surge current (one full cycle 60 Hz, Tj = 25°C)	Ітѕм	140	А
Circuit fusing consideration (t = 8.3ms)	I ² T	90	A ² S
Operating junction temperature range	Tj	-40 to +125	°C
Storage temperature range	T _{STG}	-40 to +150	°C
Note :	Version 03, NOV-2	020	

(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		UNIT		
Thermal resistance from junction to case (1)	ITO-220	Rth(j-c)	Max	10	°C/W
Junction to ambient (DC) (1)	ITO-220	Rth(j-L)	Max	9.5	C/VV
Maximum lead temperature for soldering purposes (1/8" form case for 10 seconds)		T∟	Max	260	°C

Note 1: Without Heatsink

Static Characteristics

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	
Threshold Voltage (Tj = 125°C)			ī	1	0.95	V
Dynamic resistors (Tj = 125°C)	R₀	1		30	mΩ	
Peak repetitive forward or reverse blocking current	Tj = 25°C	I _{DRM}	-	-	5	uA
(V_{AK} = rated V_{DRM} and V_{RRM} , gate open)	Tj = 125°C	I _{RRM}		-	0.5	mA

ON Characteristics

PARAMETER	SYMBOL	DT16T10T	DT16T35T		UNIT
Peak forward on-state voltage (I _{TM} = 20 A @ Tj = 25°C)	Vтм	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 =100 Ω)	I _{GT1} I _{GT2} I _{GT3}	10 10 10	35 35 35	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}	10	40	Max	mA
Latching current (V_{AK} = 12V, R_L =100 Ω)	I _{L1} IL2 IL3	25 25 25	50 80 50	Max	mA

Dynamic Characteristics

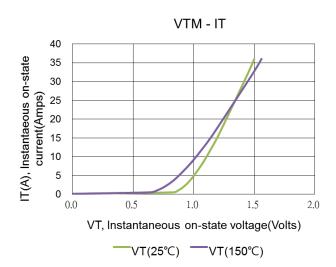
PARAMETER	SYMBOL	MIN.	TYP.		UNIT
Critical rate of rise of off-stage voltage ($V_{AK} = 67\%$ rated V_{DRM} , $T_{J} = 125$ °C, gate open)	dv/dt	500	2000	Max	V/us
Critical rate of rise of on-state current, (VDRM=maximum VDRM ,Tj = 125°C)	di/dt(s)	70	70	Max	A/us
125°C, Gate open, without snubber	di/dt(c)	2.5	4	Max	A/ms

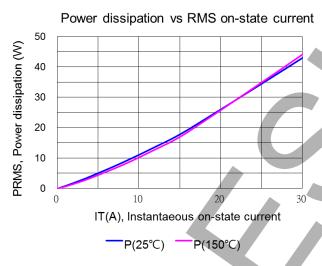
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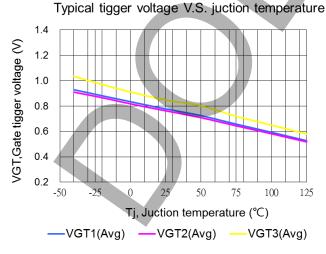
CHARACTERISTIC & CURVES (Tj = 25°C, unless otherwise specified.)

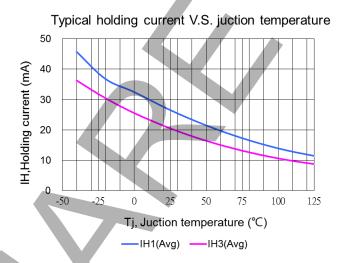


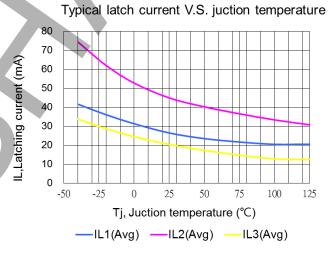
DT16T35 Characteristics

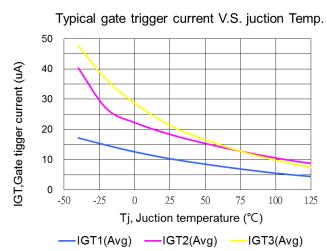










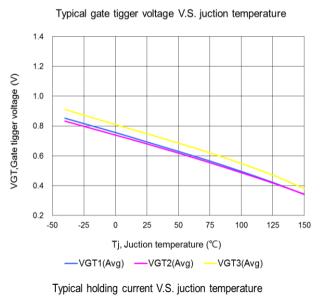


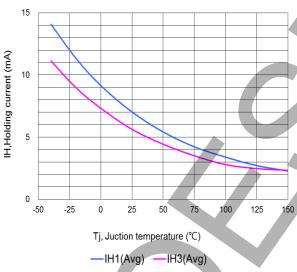
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CHARACTERISTIC & CURVES (Tj = 25°C, unless otherwise specified.)

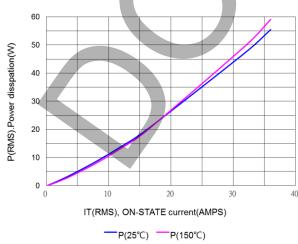


DT16T10 Characteristics

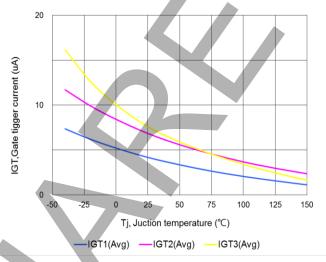




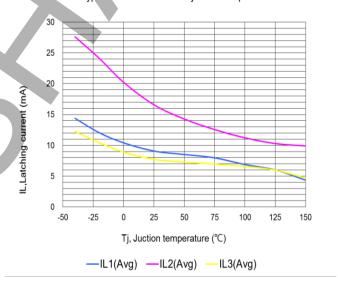
Power disspation VS ON-STATE current

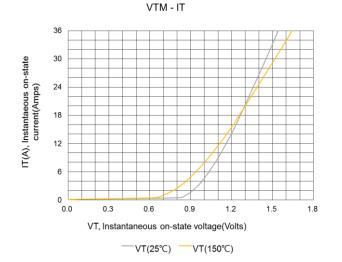


Typical gate trigger current V.S. juction temperature

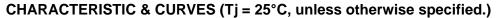


Typical latch current V.S. juction temperature





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Ordering information scheme

Type Code Product Code IT Amp Code Quadrantal Code IGT&VCEsat Code Package Code Voltage Code Operation Temp. Code Internal Code2

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 lgt 35mA, 5 means lgt 5mA

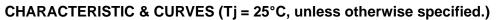
Package Code: A=>TO-92, C=>TO-126, D=> DPAK, E=>D2PAK, F=> TO-220F, G=>SOT-223

M=>ITO-3P, P=>TO-3P, T=> TO-220, Y=>TO251, X=> TO-3P-L

Voltage Code: A=> 600V, B=> 800V, C=> 1000V

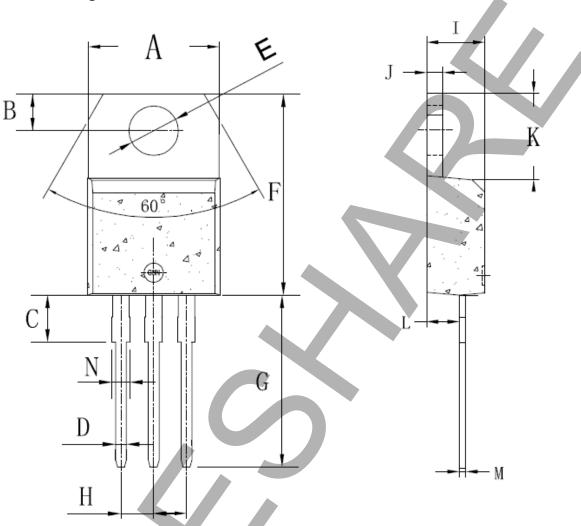
Operation Temp Code: None=>125°C, H=>150°C





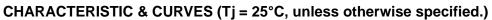


ITO-220 Plastic Package



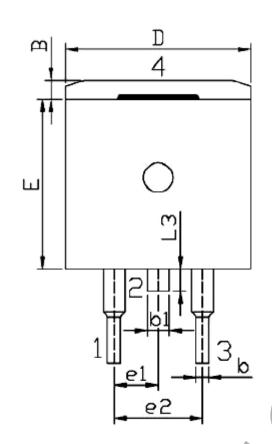
DIM	Millimeters		DIM	Millimeters		DIM	Millimeters	
	Min	Max	DIN	Min	Max	DIIVI	Min	Max
Α	9.8	10.4	E	3.75	3.95	I	4.38	4.61
В	2.65	3.1	F	14.8	16.1	J	1.15	1.36
С	2.8	4.2	G	13.05	13.6	K	5.85	6.82
D	0.7	0.92	Н	2.4	2.7	L	2.35	2.75
M	0.35	0.65	N	1.18	1.42			

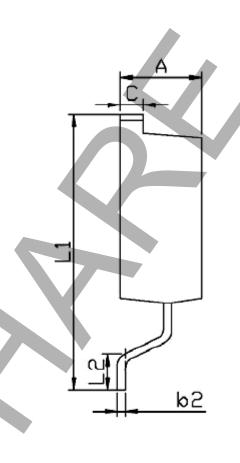
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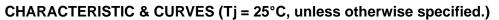
D2PAK Plastic Package





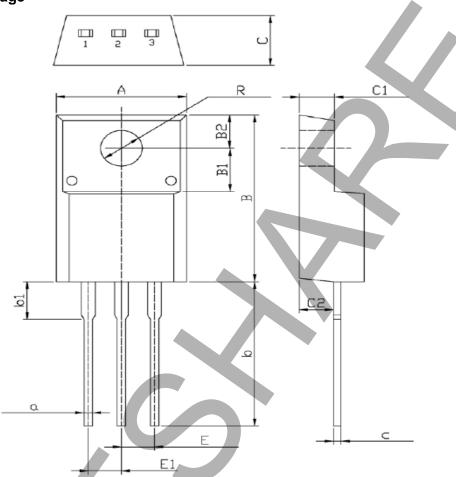
	I					
Symbol Symbol	Dimensions In	Millimeters	Symbol	Dimensions In Millimeters		
	Min	Max	Зуш 001	Min	Max	
A	4.30	4.70	E	9.00	9. 40	
В	1.00	1. 40	e1	2.34	2.74	
b	0.70	0.90	e2	4. 88	5. 28	
b 1	1. 15	1. 35	L1	15. 00	16.00	
b2	0.40	0.60	L2	2.24	2.84	
c	1.20	1. 40	L3	1.20	1.60	
D	9.80	10.20				

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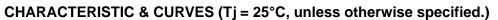


TO-220F Plastic Package



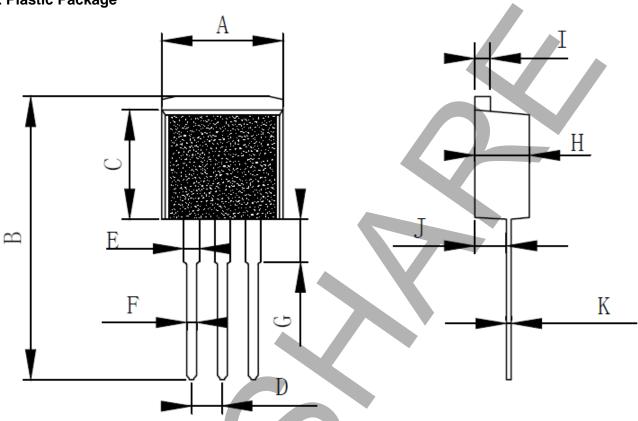
DIM	Millimeters		DIM	Millimeters		DIM	Millimeters	
	Min	Max	DIM	Min	Max	DIM	Min	Max
Α	9.7	10.3	E	2.29	2.79	b	12.5	13.5
В	14.7	15.3	E1	2.29	2.79	b1	2.9	3.9
С	4.3	4.7	B1	3.8	4.0	а	0.55	0.75
C1	2.5	2.9	B2	2.9	3.1	С	0.5	0.7
C2	2.5	2.7	R	3.0	3.4			

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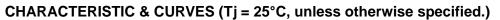


TO-262 Plastic Package



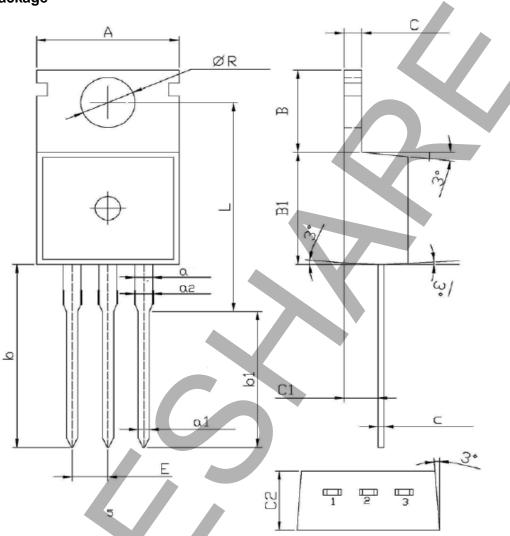
Itom	Unit: mm					
Item	Type	Min	Max			
Α	10	9.95	10.2			
В	23.35	23.25	23.45			
С	9	8.9	9.1			
D	2.54	2.5	2.6			
E	1.27	1.2	1.35			
F	0.8	0.75	0.85			
G	3.5	3.3	3.6			
Н	4.5	4.45	4.55			
I	1.27	1.25	1.29			
7	2.6	2.5	2.7			
K	0.4	0.38	0.42			

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TO-220 Plastic Package



DIM	Millin	Millimeters DIM Millimeters		neters	DIM	Millimeters		
DIIVI	Min	Max	DIIVI	Min	Max	DIIVI	Min	Max
Α	9.7	10.4	а	1.22	1.32	a2	1.18	1.45
В	6.13	6.82	a1	0.7	0.92	C2	4.3	4.71
С	1.2	1.42	b1	9.6	10.6	E	2.34	2.74
B1	9.0	9.4	С	0.38	0.65	R	3.55	3.78
b	12.6	13.6	C1	2.2	2.75	L	15.7	16.14

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CHARACTERISTIC & CURVES (Tj = 25°C, unless otherwise specified.)



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