

DT16T High Temperature TRIACs

DT16T High Temperature TRIACs SILICON BIDIRECTIONAL THYRISTORS

General description

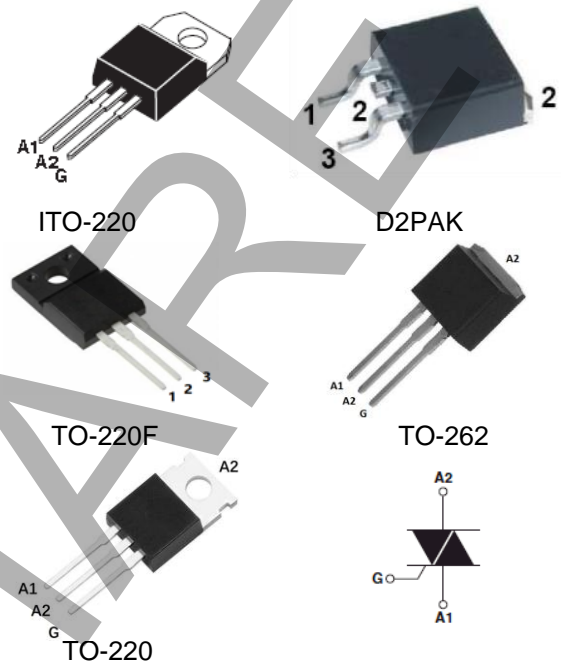
These products 16A TRIAC are packages for third quadrant, DT16T35x-xx are high commutation performance without snubber circuit. It can be controlled by phase angle trigger or on/off trigger.

FEATURES

- Passivated die for reliability and uniformity
- Three-quadrant triggering Triac, Over 800V V_{DRM}/V_{RRM}
- 150°C 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



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

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

Absolute Ratings

PARAMETER	SYMBOL	VALUE	UNIT
Peak repetitive off-state voltage ($T_j = -40$ 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, $T_c = 100^\circ\text{C}$)	$I_{T(RMS)}$	16	A
Peak non-repetitive surge current (one full cycle 60 Hz, $T_j = 25^\circ\text{C}$)	I_{TSM}	140	A
Circuit fusing consideration ($t = 8.3\text{ms}$)	I^2T	90	A^2S
Operating junction temperature range	T_j	-40 to +150	$^\circ\text{C}$
Storage temperature range	T_{STG}	-40 to +150	$^\circ\text{C}$

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 03, NOV-2020

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CHARACTERISTIC & CURVES ($T_j = 25^\circ\text{C}$, unless otherwise specified.)



Thermal Characteristics

PARAMETER		SYMBOL	VALUE		UNIT
Thermal resistance from junction to case (1)	ITO-220	$R_{th(j-c)}$	Max	10	°C/W
Junction to ambient (DC) (1)	ITO-220	$R_{th(j-L)}$	Max	10	
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 ($T_j = 150^\circ\text{C}$)		V_{to}	--	--	0.9	V
Dynamic resistors ($T_j = 150^\circ\text{C}$)		R_d	--	--	30	mΩ
Peak repetitive forward or reverse blocking current ($V_{AK} = \text{rated } V_{DRM}$ and V_{RRM} , gate open)	$T_j = 25^\circ\text{C}$	I_{DRM}	--	--	5	uA
	$T_j = 150^\circ\text{C}$	I_{RRM}	--	--	3	mA

ON Characteristics

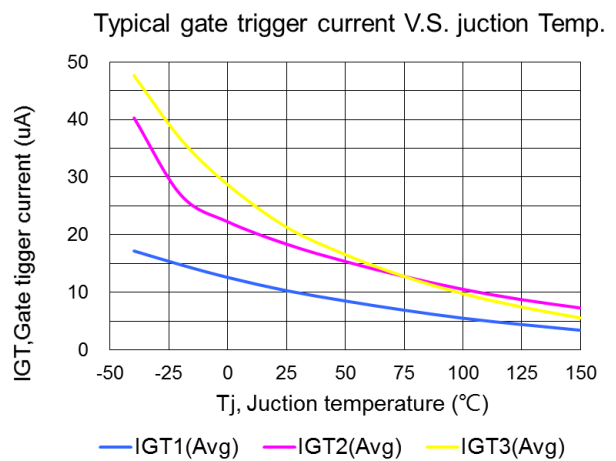
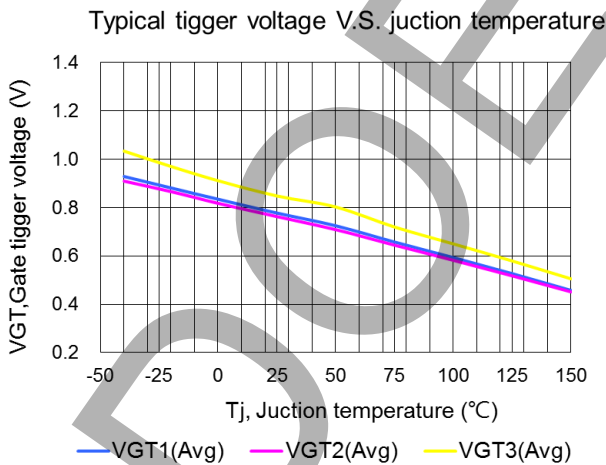
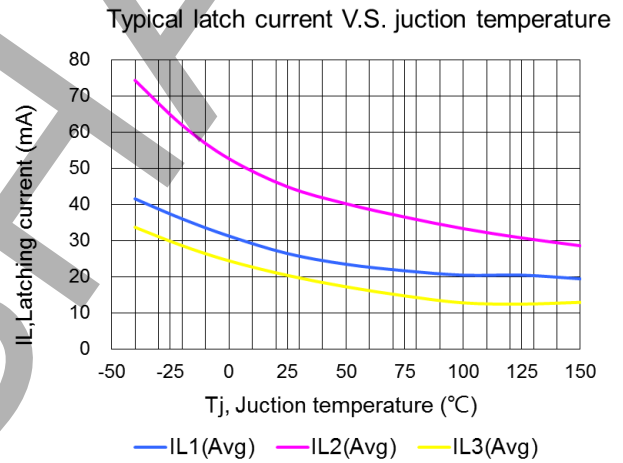
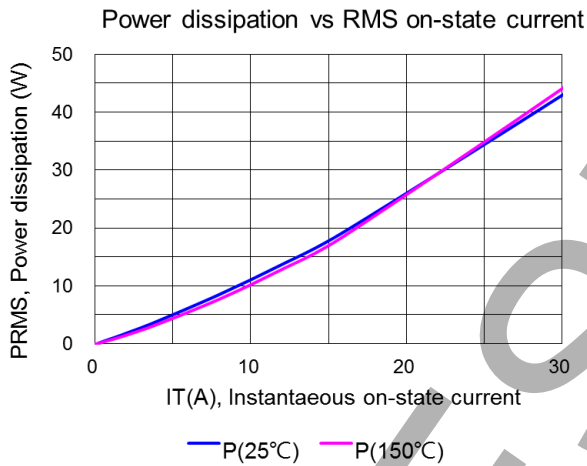
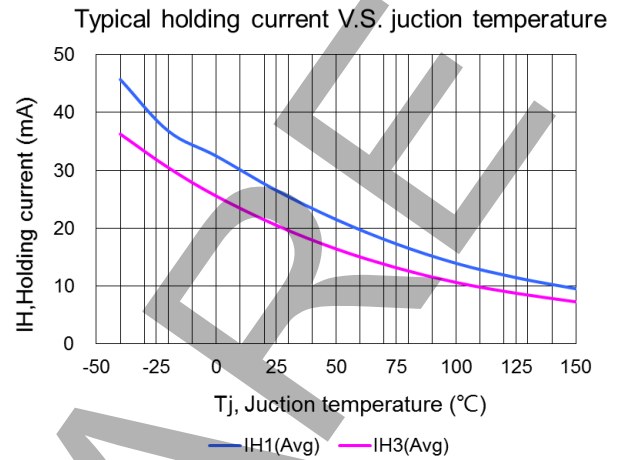
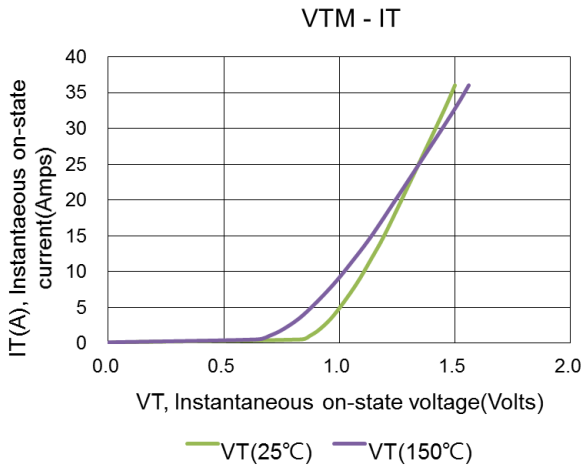
PARAMETER		SYMBOL	MIN.	TYP.	MAX.	UNIT
Peak forward on-state voltage ($I_{TM} = 20\text{ A @ } T_j = 25^\circ\text{C}$)		V_{TM}	--	--	1.5	V
$V_D = V_{DRM}$, $R_L = 100\Omega$, $T_j = 150^\circ\text{C}$		V_{GD}	0.2	--	--	V
Gate trigger current ($V_{AK} = 12\text{V}$, $R_L = 100\Omega$)		I_{GT1} I_{GT2} I_{GT3}	--	--	35 35 35	mA
Gate trigger voltage ($V_{AK} = 12\text{V}$, $R_L = 100\Omega$)		V_{GT1} V_{GT2} V_{GT3}	--	--	1	V
Holding current ($V_{AK} = 12\text{V}$, $R_L = 100\Omega$)		I_{H1} I_{H3}	--	--	40	mA
Latching current ($V_{AK} = 12\text{V}$, $R_L = 100\Omega$)		I_{L1} I_{L2} I_{L3}	--	--	50 80 50	mA

Dynamic Characteristics

PARAMETER		SYMBOL	MIN.	TYP.	MAX.	UNIT
Critical rate of rise of off-stage voltage ($V_{AK} = 67\%$ rated V_{DRM} , $T_j = 150^\circ\text{C}$, gate open)		dv/dt	--	--	2000	V/us
Critical rate of rise of on-state current, ($V_{DRM} = \text{maximum } V_{DRM}$, $T_j = 150^\circ\text{C}$)		di/dt(s)	--	--	70	A/us
150°C, Gate open, without snubber		di/dt(c)	--	--	4	A/ms

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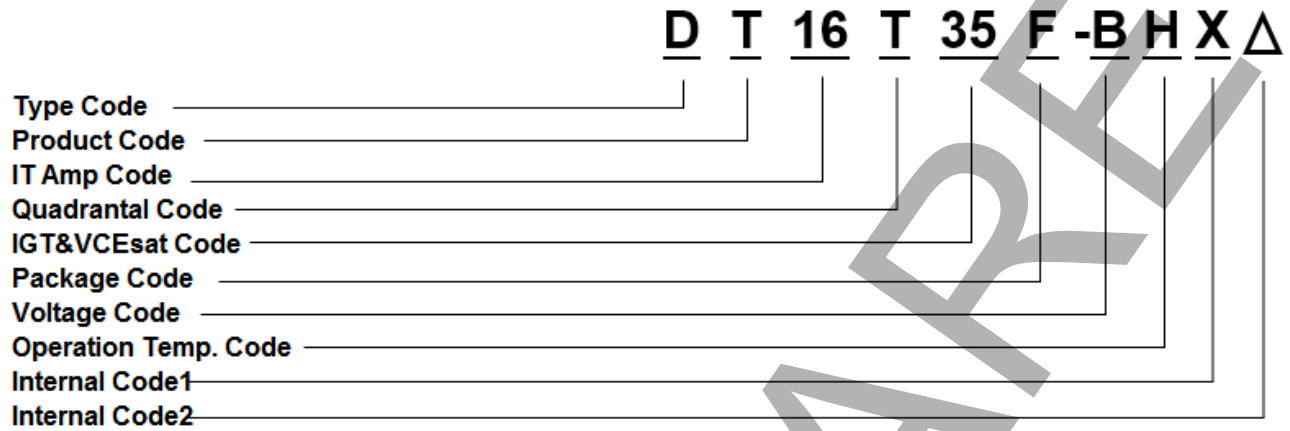


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CHARACTERISTIC & CURVES (Tj = 25°C, unless otherwise specified.)



Ordering information scheme

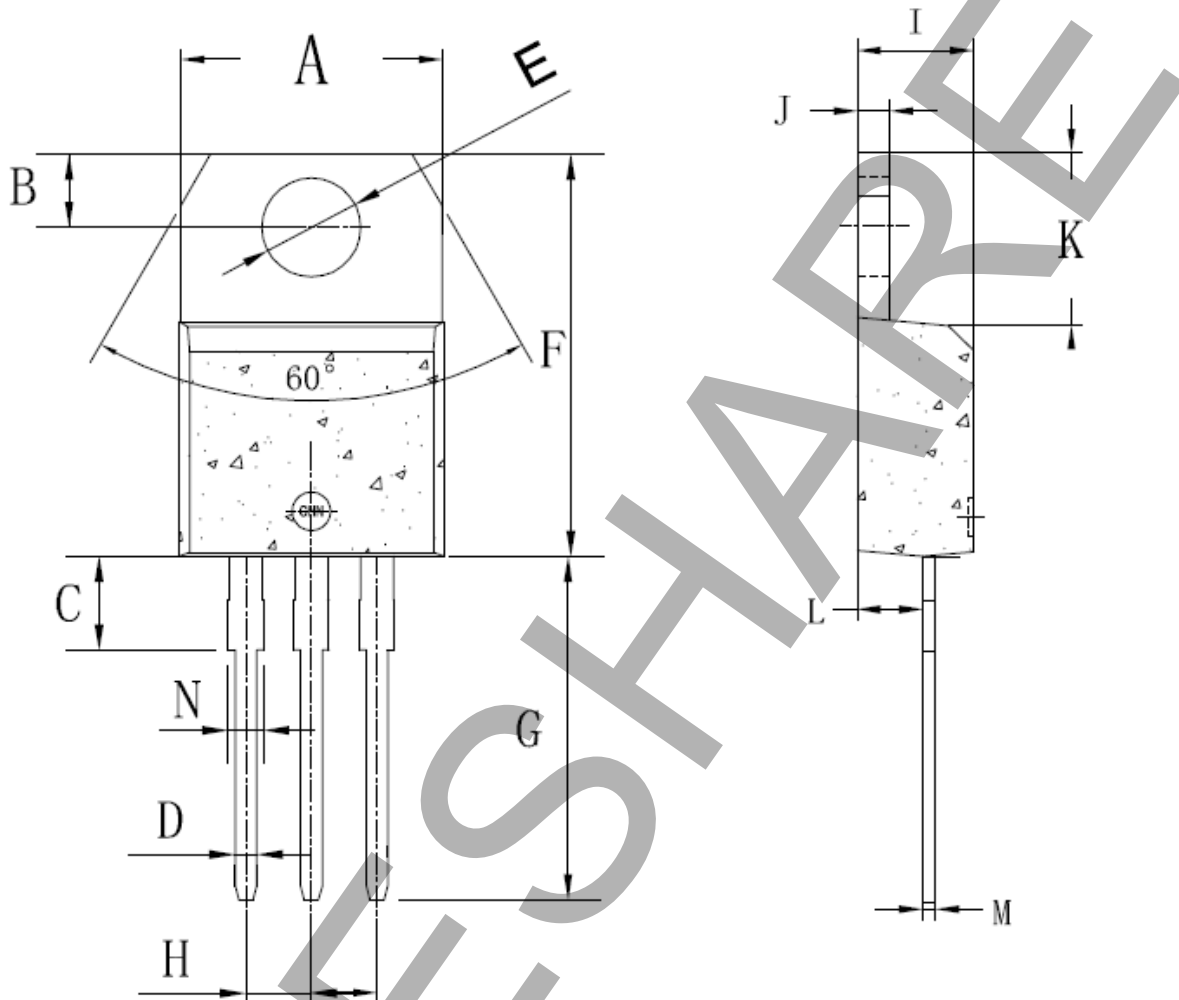


- Type Code: Doeshare Standar products
- Product Code: T for Triac series
- IT Amp Code: 16 for 16A, 1 for 1A
- Quadrantal Code: T for 3Q, F for 4Q
- IGT&VCEsat Code: 35 means Igt 35mA, 5 means Igt 5mA
- Package Code: A=>TO-92, C=>TO-126, D=> DPAK, E=>D2PAK, F=> TO-220F, G=>SOT-223
M=>ITO-3P, P=>TO-3P, 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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ITO-220 Plastic Package

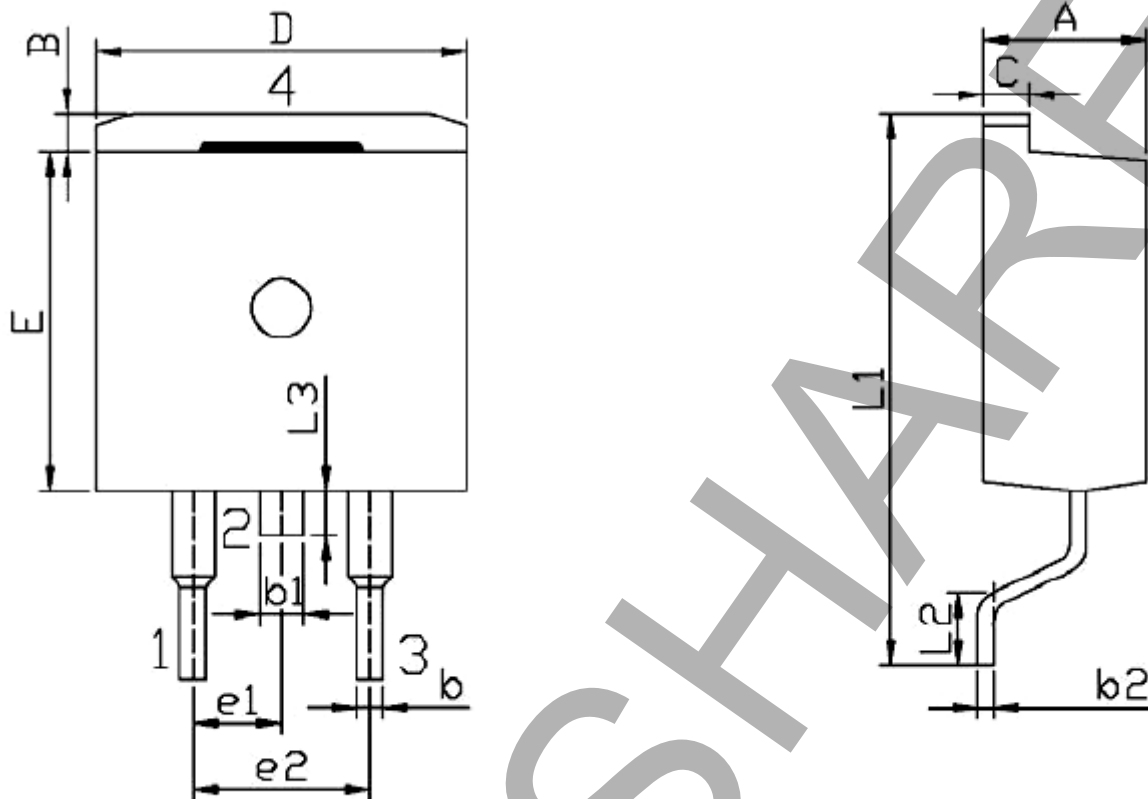


DIM	Millimeters		DIM	Millimeters		DIM	Millimeters	
	Min	Max		Min	Max		Min	Max
A	9.8	10.4	E	3.75	3.95	I	4.38	4.61
B	2.65	3.1	F	14.8	16.1	J	1.15	1.36
C	2.8	4.2	G	13.05	13.6	K	5.85	6.82
D	0.7	0.92	H	2.4	2.7	L	2.35	2.75
M	0.35	0.65	N	1.18	1.42			

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D2PAK Plastic Package

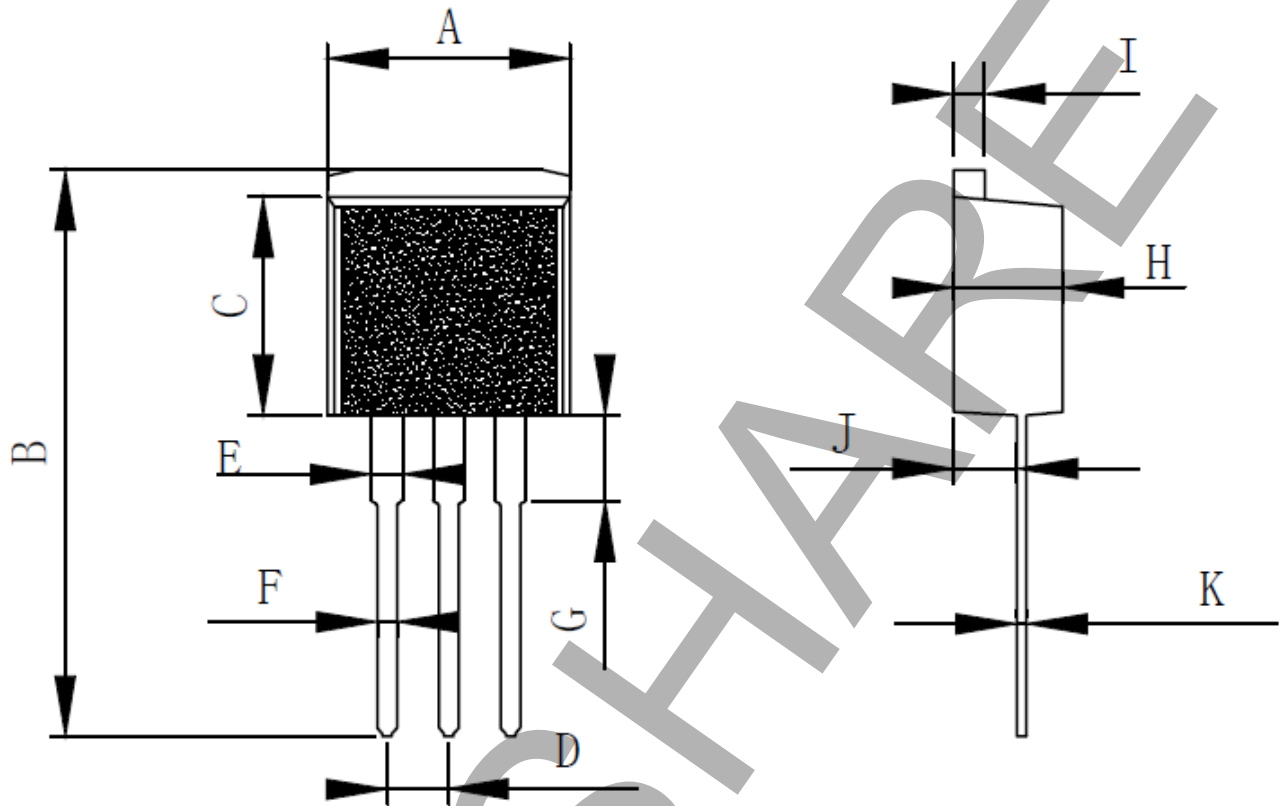


Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.30	4.70	E	9.00	9.40
B	1.00	1.40	e1	2.34	2.74
b	0.70	0.90	e2	4.88	5.28
b1	1.15	1.35	L1	15.00	16.00
b2	0.40	0.60	L2	2.24	2.84
C	1.20	1.40	L3	1.20	1.60
D	9.80	10.20			

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CHARACTERISTIC & CURVES ($T_j = 25^\circ\text{C}$, unless otherwise specified.)

TO-262 Plastic Package



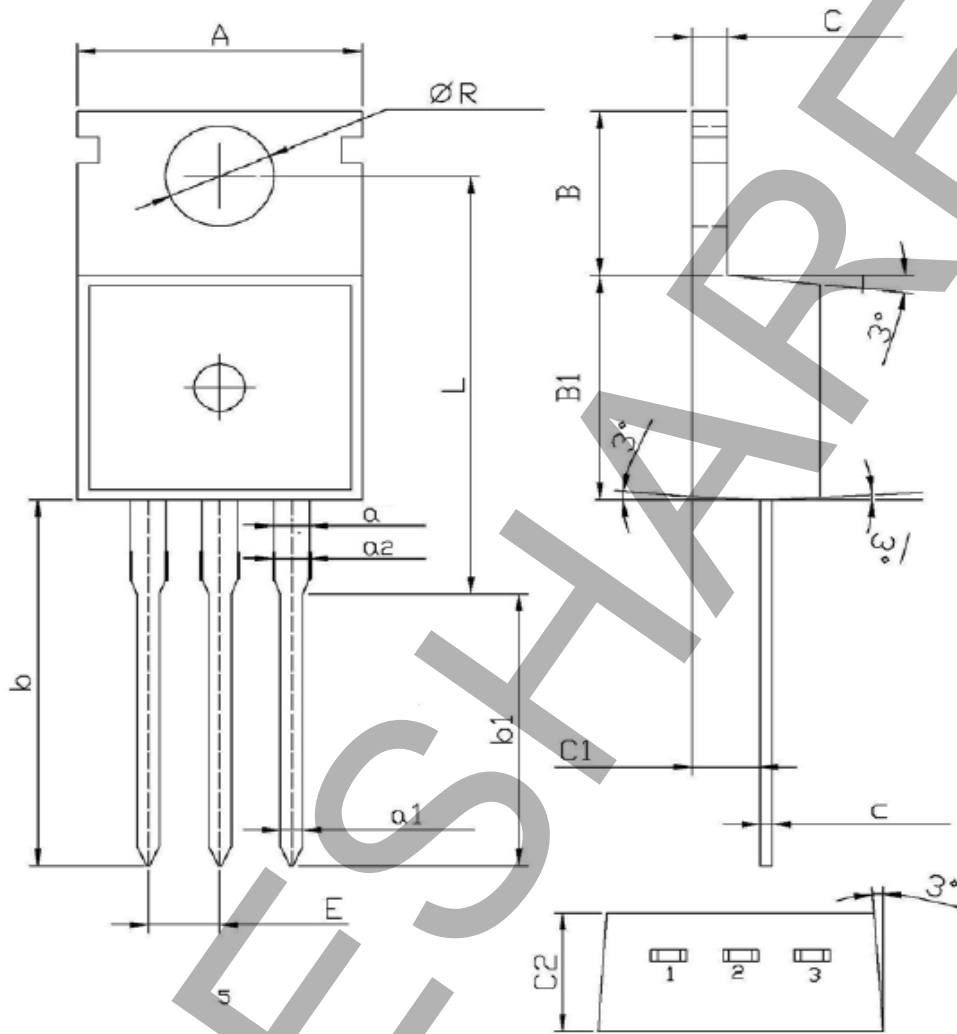
Item	Unit: mm		
	Type	Min	Max
A	10	9.95	10.2
B	23.35	23.25	23.45
C	9	8.9	9.1
D	2.54	2.5	2.6
E	1.27	1.2	1.35
F	0.8	0.75	0.85
G	3.5	3.3	3.6
H	4.5	4.45	4.55
I	1.27	1.25	1.29
J	2.6	2.5	2.7
K	0.4	0.38	0.42

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



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

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