3 Quadrants Standard TRIAC

FEATURES

- Repetitive Peak Off-State Voltage : 600V/800V
- R.M.S On–State Current ($I_{T(RMS)}$ = 4A)
- Gate Trigger Current : 10mA
- High commutation capability.

V_{DRM} = 600V/800V
$I_{T(RMS)}$ = 4 A
I_{TSM} = 42 A
I_{GT} = 10mA

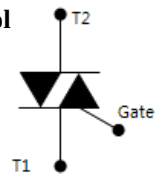
Applications

General purpose of AC switching, heating control, motor control, etc

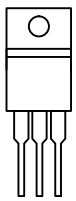
General Description

Din-Tek's standard TRIAC product is a glass passivated device, has a high commutative performance, stable gate triggering level to temperature and high off state voltage. It is generally suitable for power and phase control in ac application

Symbol

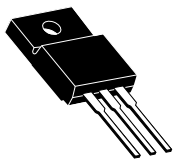


TO-220AB



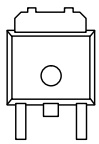
T1 T2 G

TO-220 FULLPAK



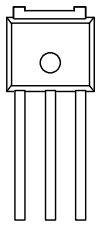
T1 T2 G

TO-252



T1 T2 G

TO-251



T1 T2 G

Absolute Maximum Ratings (T_J=25℃ unless otherwise specified)

Symbol	Parameter	Conditions	Ratings		Unit
			DTJ4A60	DTJ4A80	
V_{DRM}	Repetitive Peak Off-State Voltage	Sine wave, 50/60Hz, Gate open	600	800	V
V_{RRM}	Repetitive Peak Reverse Voltage		600	800	V
$I_{T(AV)}$	Average On-State Current	Full sine wave, T_C = 97.6°C	3.6		A
$I_{T(RMS)}$	R.M.S. On-State Current		4		A
I_{TSM}	Surge On-State Current	½ cycle, 50Hz/60Hz, Sine wave, Non repetitive	40/42		A
I^2t	Fusing Current	t = 10ms	8.8		A^2S
P_{GM}	Forward Peak Gate Power Dissipation	T_J = 125 ˚C	5		W
$P_{G(AV)}$	Forward Average Gate Power Dissipation	T_J = 125 ˚C, over any 20ms	0.5		W
I_{FGM}	Forward Peak Gate Current	T_J = 125 ˚C, pulse width ≤ 20us	2		A
V_{RGM}	Reverse Peak Gate Voltage	T_J = 125 ˚C, pulse width ≤ 20us	5		V
T_J	Operating Junction Temperature		-40~+150		°C
T_{STG}	Storage Temperature		-40~+150		°C

Electrical Characteristics (T_J=25℃ unless otherwise specified)

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
I_{DRM}	Repetitive Peak Off-State Current	$V_D = V_{DRM}$	T_J=25°C	-	-	50	uA
			T_J=125°C	-	-	0.1	mA
I_{RRM}	Repetitive Peak Reverse Current	$V_D = V_{DRM}$	T_J=25°C	-	-	50	uA
			T_J=125°C	-	-	5	mA
I_{GT}	Gate Trigger Current	V_D = 12V, R_L=330Ω	1+, 1-, 3-	-	-	10	mA
V_{GT}	Gate Trigger Voltage	V_D = 12V, R_L=330Ω	1+, 1-, 3-	-	-	2.0	V
V_{GD}	Non-Trigger Gate Voltage[1]	V_D = 12V, R_L=330Ω, T_J=125°C		0.2	-	-	V
V_{TM}	Peak On-State Voltage	I_T = 5.6A, I_G = 20mA		-	1.2	1.5	V
dv/dt	Critical Rate of Rise of Off-State Voltage	V_D = 2/3 V_{DRM}, T_J=125°C		200	-	-	V/us
I_H	Holding current	I_T= 0.2A		-	25	-	mA

Notes :
1. Pulse Width ≤ 1.0ms, Duty Cycle ≤ 1%

Thermal Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{\theta JC}$	Thermal Resistance	Junction to Case			4.2	°C/W
$R_{\theta JA}$	Thermal Resistance	Junction to Ambient			58	°C/W

Typical Characteristics

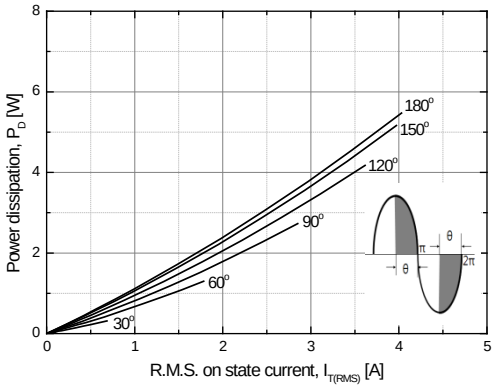


Fig 1. R.M.S. current vs. Power dissipation

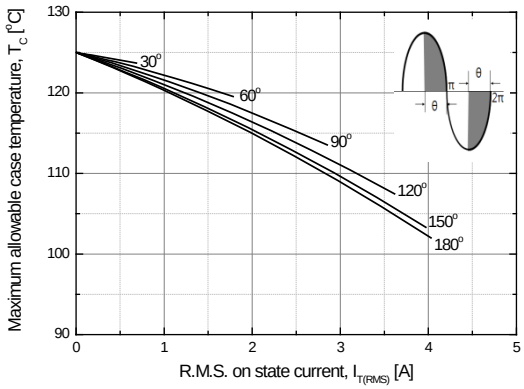


Fig 2. R.M.S. current vs. Case temperature

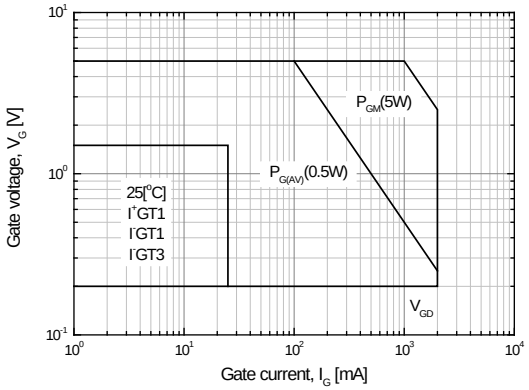


Fig 3. Gate power characteristics

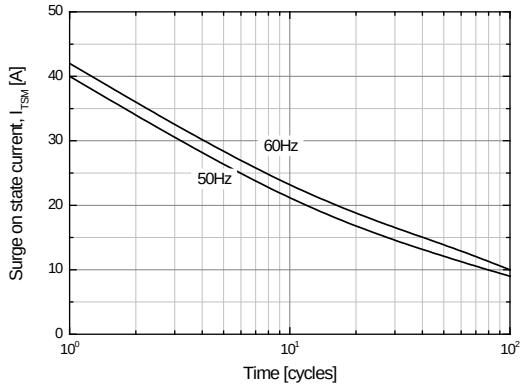


Fig 4. Surge on state current rating (Non-repetitive)

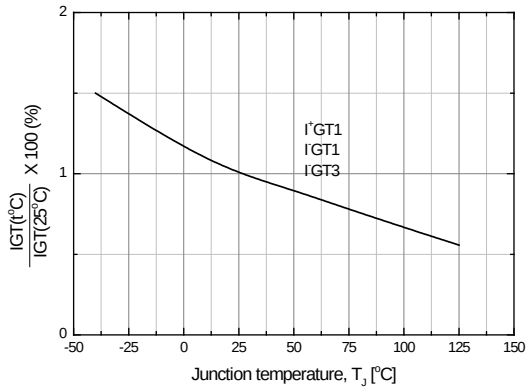


Fig 5. Gate trigger current vs. junction temperature

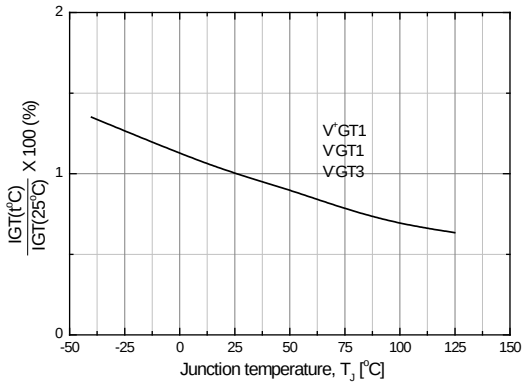


Fig 6. Gate trigger voltage vs. junction temperature

Typical Characteristics

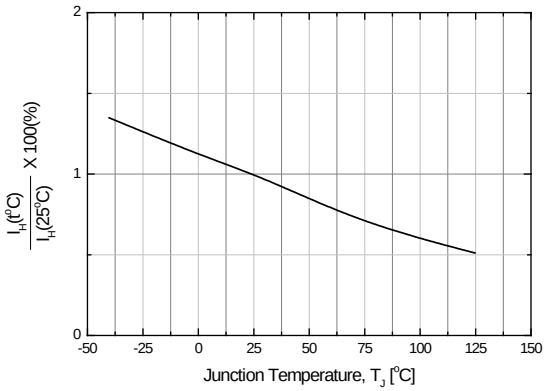


Fig 7. Holding current vs. Junction temperature

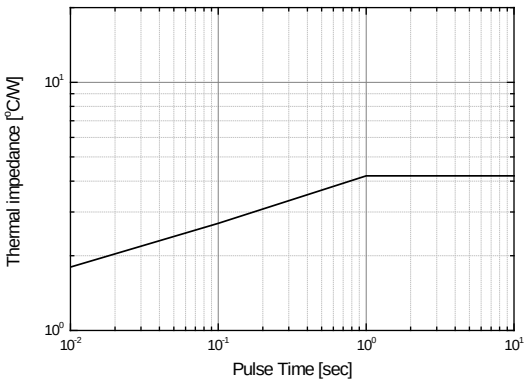


Fig 8. Thermal Impedance vs. pulse time

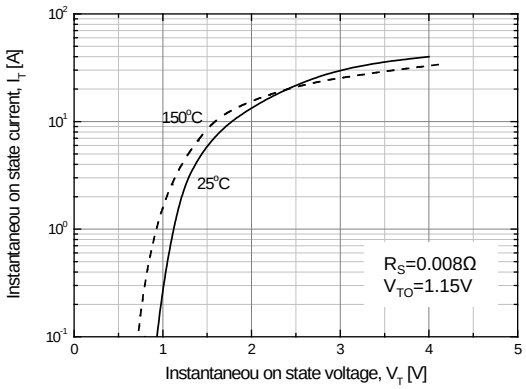
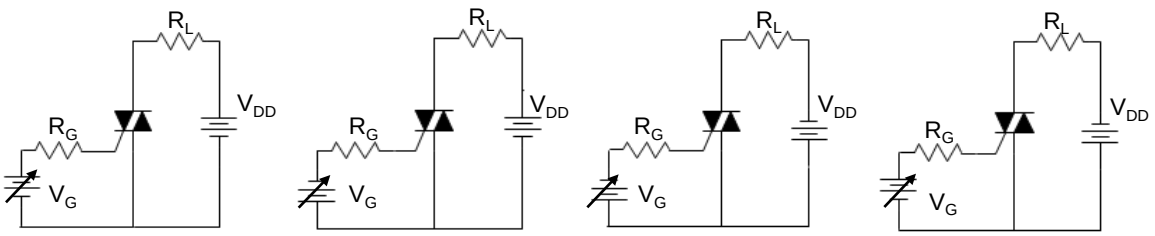


Fig 9. Instantaneous on state current vs. Instantaneous on state voltage

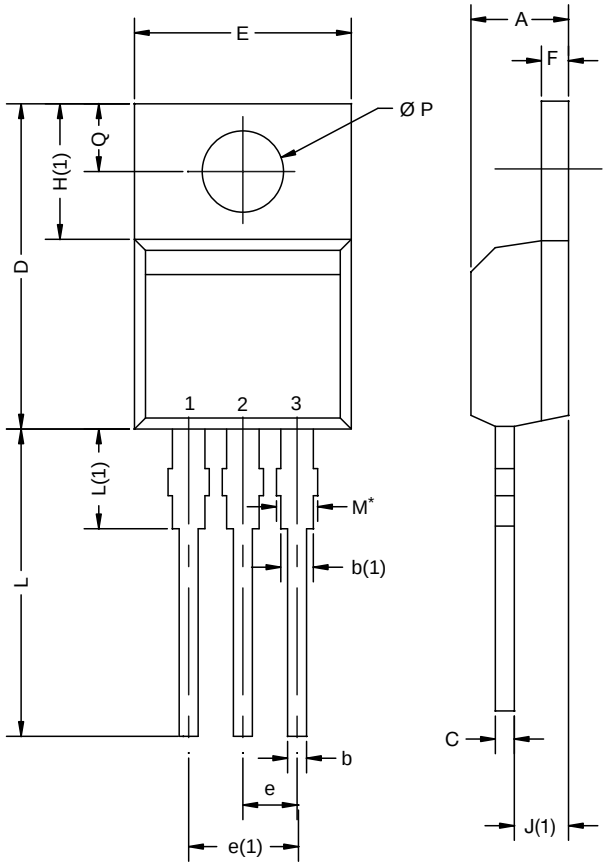
Measurement of gate trigger current



(1) Quadrant I (2) Quadrant II (3) Quadrant III (4) Quadrant IV

Note. Whole parameter and test condition can not be over absolute maximum ratings in this datasheet.

TO-220AB

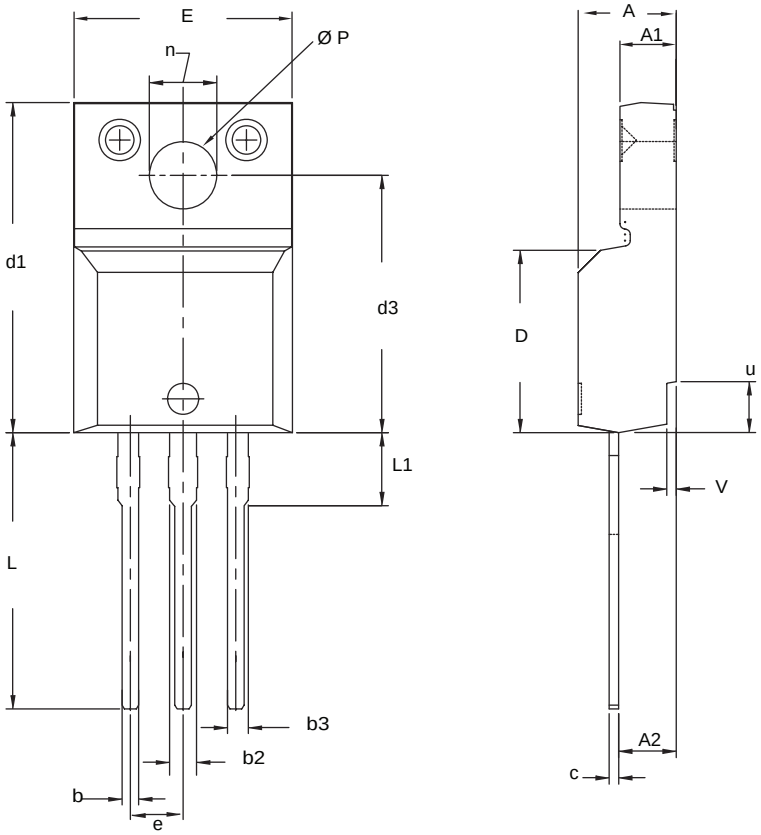


DIM.	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	4.25	4.65	0.167	0.183
b	0.69	1.01	0.027	0.040
b(1)	1.20	1.73	0.047	0.068
c	0.36	0.61	0.014	0.024
D	14.85	15.49	0.585	0.610
E	10.04	10.51	0.395	0.414
e	2.41	2.67	0.095	0.105
e(1)	4.88	5.28	0.192	0.208
F	1.14	1.40	0.045	0.055
H(1)	6.09	6.48	0.240	0.255
J(1)	2.41	2.92	0.095	0.115
L	13.35	14.02	0.526	0.552
L(1)	3.32	3.82	0.131	0.150
Ø P	3.54	3.94	0.139	0.155
Q	2.60	3.00	0.102	0.118
ECN: X12-0208-Rev. N, 08-Oct-12 DWG: 5471				

Notes

* M = 1.32 mm to 1.62 mm (dimension including protrusion) Heatsink hole for HVM

TO-220 FULLPAK (HIGH VOLTAGE)

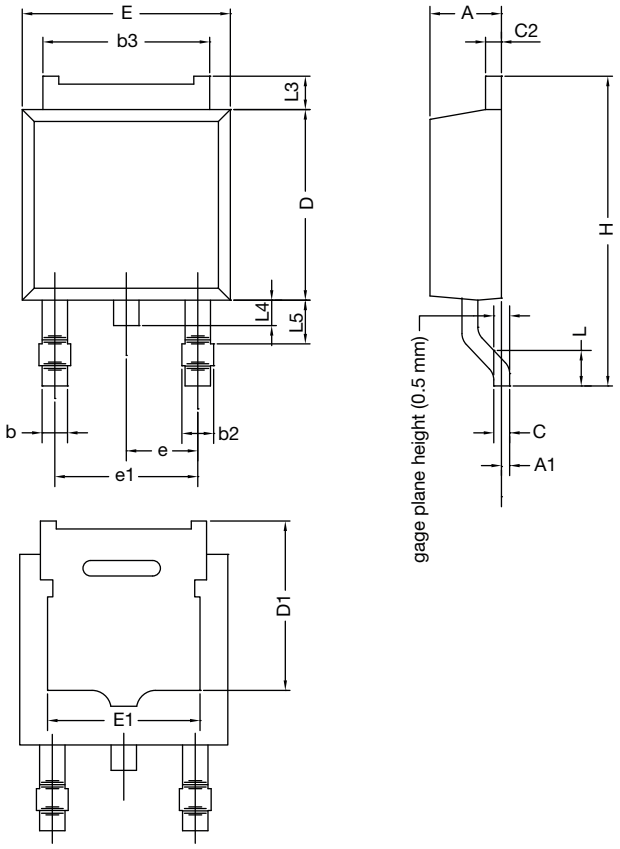


	MILLIMETERS		INCHES	
DIM.	MIN.	MAX.	MIN.	MAX.
A	4.570	4.830	0.180	0.190
A1	2.570	2.830	0.101	0.111
A2	2.510	2.850	0.099	0.112
b	0.622	0.890	0.024	0.035
b2	1.229	1.400	0.048	0.055
b3	1.229	1.400	0.048	0.055
c	0.440	0.629	0.017	0.025
D	8.650	9.800	0.341	0.386
d1	15.88	16.120	0.622	0.635
d3	12.300	12.920	0.484	0.509
E	10.360	10.630	0.408	0.419
e	2.54 BSC		0.100 BSC	
L	13.200	13.730	0.520	0.541
L1	3.100	3.500	0.122	0.138
n	6.050	6.150	0.238	0.242
Ø P	3.050	3.450	0.120	0.136
u	2.400	2.500	0.094	0.098
v	0.400	0.500	0.016	0.020
ECN: X09-0126-Rev. B, 26-Oct-09 DWG: 5972				

Notes

1. To be used only for process drawing.
2. These dimensions apply to all TO-220, FULLPAK leadframe versions 3 leads.
3. All critical dimensions should C meet $C_{pk} > 1.33$.
4. All dimensions include burrs and plating thickness.
5. No chipping or package damage.

TO-252AA CASE OUTLINE

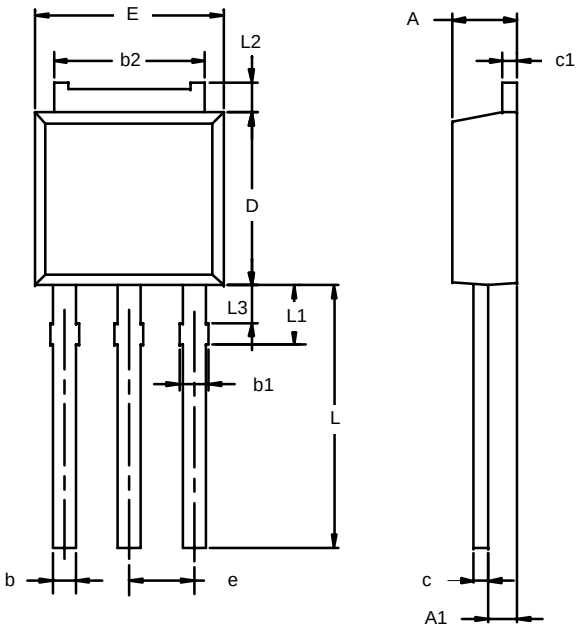


	MILLIMETERS		INCHES	
DIM.	MIN.	MAX.	MIN.	MAX.
A	2.18	2.38	0.086	0.094
A1	-	0.127	-	0.005
b	0.64	0.88	0.025	0.035
b2	0.76	1.14	0.030	0.045
b3	4.95	5.46	0.195	0.215
C	0.46	0.61	0.018	0.024
C2	0.46	0.89	0.018	0.035
D	5.97	6.22	0.235	0.245
D1	5.21	-	0.205	-
E	6.35	6.73	0.250	0.265
E1	4.32	-	0.170	-
H	9.40	10.41	0.370	0.410
e	2.28 BSC		0.090 BSC	
e1	4.56 BSC		0.180 BSC	
L	1.40	1.78	0.055	0.070
L3	0.89	1.27	0.035	0.050
L4	-	1.02	-	0.040
L5	1.14	1.52	0.045	0.060
ECN: X12-0247-Rev. M, 24-Dec-12 DWG: 5347				

Note

- Dimension L3 is for reference only.

TO-251AA (DPAK)



Note: Dimension L3 is for reference only.

Dim	MILLIMETERS		INCHES	
	Min	Max	Min	Max
A	2.21	2.38	0.087	0.094
A1	0.89	1.14	0.035	0.045
b	0.71	0.89	0.028	0.035
b1	0.76	1.14	0.030	0.045
b2	5.23	5.43	0.206	0.214
c	0.46	0.58	0.018	0.023
c1	0.46	0.58	0.018	0.023
D	5.97	6.22	0.235	0.245
E	6.48	6.73	0.255	0.265
e	2.28 BSC		0.090 BSC	
L	8.89	9.53	0.350	0.375
L1	1.91	2.28	0.075	0.090
L2	0.89	1.27	0.035	0.050
L3	1.15	1.52	0.045	0.060
ECN: S-03946—Rev. E, 09-Jul-01 DWG: 5346				

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