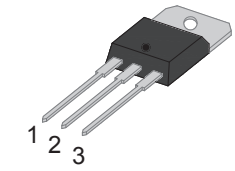
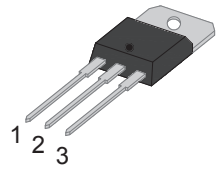
16A TRIACs

Features

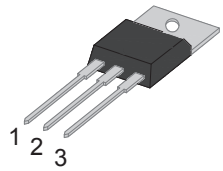
- Glass passivated chip junction
- High voltage and surge capability
- Low thermal resistance and durability
- Triggering in three quadrants
- Pb-free
- RoHS compliant
- SMD device halogen free



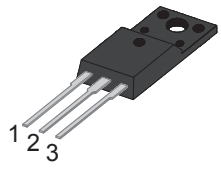
TO-220E-3 (Insulated)



TO-220E-3



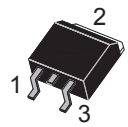
TO-220AB



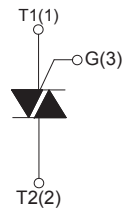
ITO-220AB

Applications

- Static relays
- Heating regulation
- Induction motor starting circuits
- Phase control operation in light dimmers
- Motor speed controllers



TO-263



Main Features

Symbol	Value	Unit
$I_{T(RMS)}$	16	A
V_{DRM} /V_{RRM}	600 / 800 / 1200	V

Absolute Maximum Ratings

Parameter		Symbol	Value	Unit
Storage junction temperature range		T_{STG}	-40 to 150	°C
Operating junction temperature range		T_J	-40 to 150	°C
Repetitive peak off-state voltage (T_J = 25°C)		V_{DRM}	600 / 800 / 1200	V
Repetitive peak reverse voltage (T_J = 25°C)		V_{RRM}	600 / 800 / 1200	V
RMS on-state current	TO-220E-3(Ins) (T_C=86°C)	$I_{T(RMS)}$	16	A
	TO-220E-3 (T_C=107°C)			
	TO-220AB (T_C=107°C)			
	ITO-220AB (T_C=90°C)			
	TO-263 (T_C=115°C)			
Non repetitive surge peak on-state current (180° conduction angle, F = 50Hz, t_P = 20ms, full cycle)		I_{TSM}	160	A
I^2t value for fusing (t_P = 10ms)		I^2t	128	A^2s
Critical rate of rise of on-state current (I_G = 2×I_{GT}, t_r ≤ 100ns)		dI/dt	50	A/µs
Peak gate current		I_{GM}	4	A
Average gate power dissipation		$P_{G(AV)}$	1	W

Electrical Characteristics (T_J = 25°C unless otherwise specified)

Logic Level & Snubberless (3 Quadrants)

Symbol	Test Condition	Quadrant		Value				Unit
I_{GT}	V_D = 12V, R_L = 100Ω	I - II - III	MAX	5	10	35	50	mA
V_{GT}	V_D = 12V, R_L = 100Ω	I - II - III	MAX	1.3				V
V_{GD}	V_D = V_{DRM}, T_J = 125°C	I - II - III	MIN	0.2				V
I_L	I_G = 1.2×I_{GT}	I - III	MAX	20	30	50	80	mA
		II		30	40	60	100	
I_H	V_{AK} = 12V, I_{GK} = 100mA		MAX	50	20	40	60	mA
dV/dt	V_D = 67% V_{DRM}, Gate open, T_J = 125°C		MIN	100	200	500	1000	V/µs

Static Characteristics

Symbol	Test Condition			Value	Unit
V_{TM}	I_{TM} = 22.5A, t_P = 380µs	T_J = 25°C	MAX	1.55	V
I_{DRM} I_{RRM}	V_D = V_{DRM}, V_R = V_{RRM}	T_J = 25°C	MAX	5	µA
		T_J = 125°C		2	mA

Thermal Resistances

Symbol	Parameter		Value	Unit
$R_{\theta JC}$	Junction to case(AC)	TO-220E-3(Ins)	2.1	°C/W
		TO-220E-3	1.2	
		TO-220AB	1.2	
		ITO-220AB	2.3	
		TO-263	0.85	

Ordering Information

Ordering Type	Marking	Package	Quantity	Delivery Mode
T16xx-yyEI	T16xx-yyEI	TO-220E-3(Ins)	50	Tube
T16xx-yyE	T16xx-yyE	TO-220E-3	50	Tube
T16xx-yyT	T16xx-yyT	TO-220AB	50	Tube
T16xx-yyTF	T16xx-yyTF	ITO-220AB	50	Tube
T16xx-yyTD	T16xx-yyTD	TO-263	50	Tube
T16xx-yyTD	T16xx-yyTD	TO-263	800	13" diameter reel

Note : xx = sensitivity, yy = voltage

Ordering Information Scheme

T 16 05 - 600 T

Triac series
T = 3 Quadrants

$I_{T(RMS)}$
16 = 16A

I_{GT} Sensitivity
05 = 5/5/5mA
10 = 10/10/10mA
35 = 35/35/35mA
50 = 50/50/50mA

V_{DRM} / V_{RRM}
600 = 600V
800 = 800V
12 = 1200V

Package type
E = TO-220E-3
EI = TO-220E-3(Ins)
T = TO-220AB
TF = ITO-220AB
TD = TO-263

Ratings and Characteristics Curves

Fig.1 - RMS on-state current versus case temperature

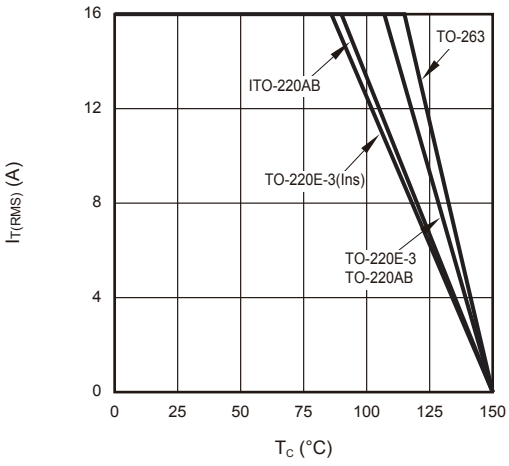


Fig.2 - Surge peak on-state current versus number of cycles

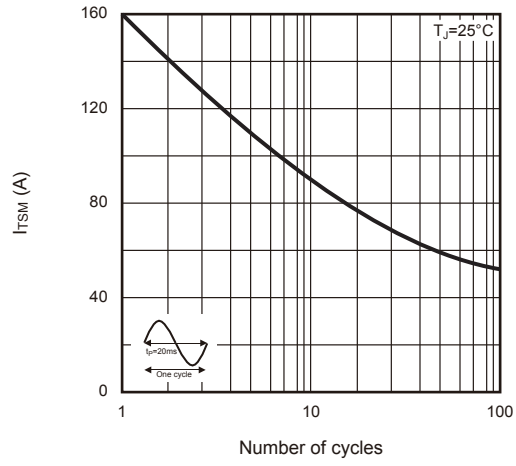


Fig.3 - On-state characteristics (maximum values)

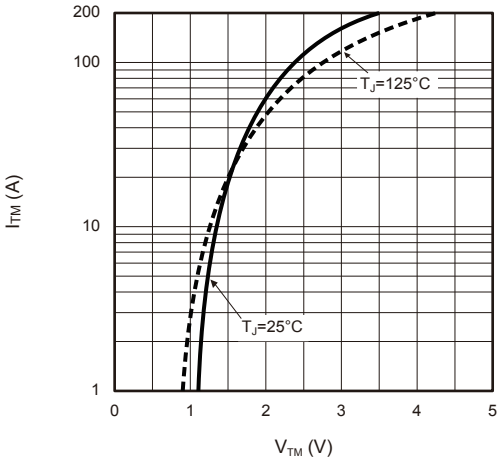


Fig.4 - Maximum power dissipation versus RMS on-state current

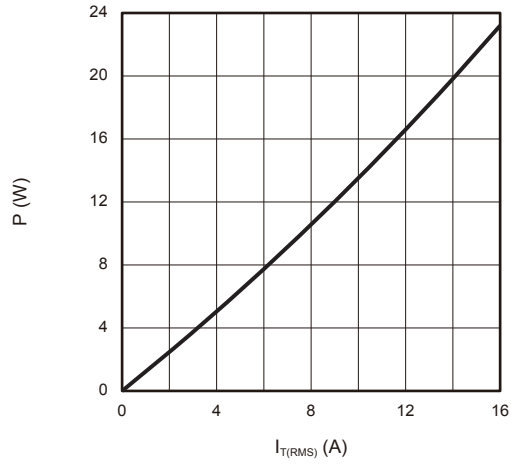
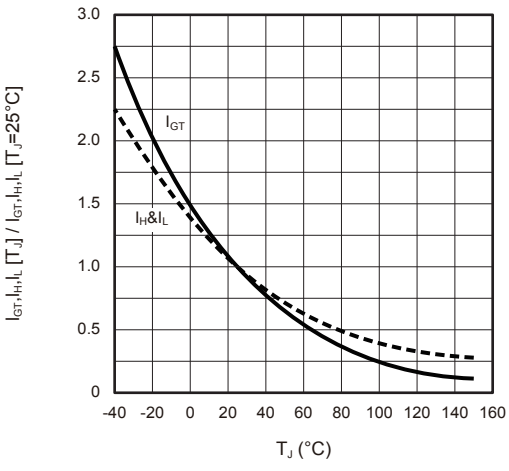
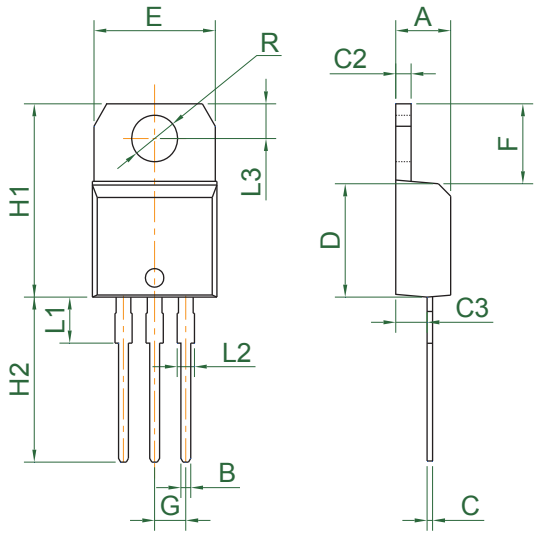


Fig.5 - Relative variations of gate trigger current, holding current and latching current versus junction temperature



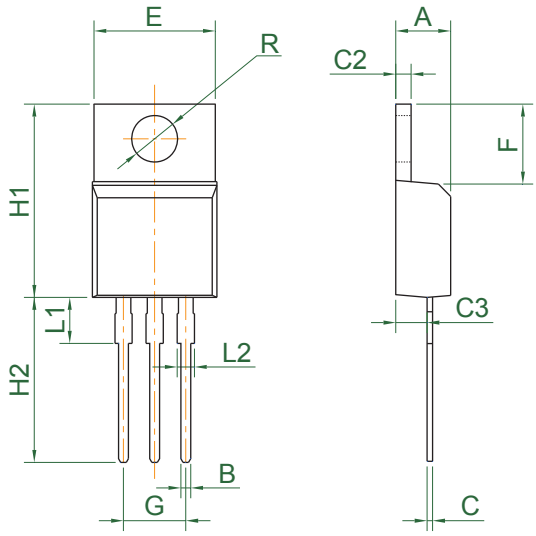
Package Outline Dimensions

TO-220E-3 / TO-220E-3(Ins)



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.38	-	4.61	.172	-	.182
B	0.6	-	0.92	.024	-	.036
C	0.35	-	0.7	.014	-	.028
C2	1.15	-	1.36	.045	-	.054
C3	2.35	-	2.75	.092	-	.108
D	8.6	-	9.7	.339	-	.382
E	9.8	-	10.4	.386	-	.409
F	5.85	-	6.95	.230	-	.274
G	2.4	-	2.7	.094	-	.106
H1	14.8	-	16.1	.583	-	.634
H2	13.0	-	14.0	.512	-	.551
L1	2.8	-	4.2	.110	-	.165
L2	1.14	-	1.7	.045	-	.067
L3	2.65	-	3.1	.104	-	.122
R	3.7	-	3.95	.146	-	.156

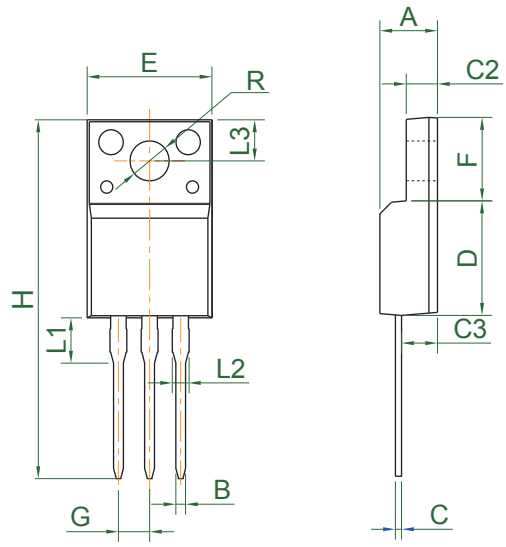
TO-220AB



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.07	-	4.85	.160	-	.191
B	0.6	-	1.0	.024	-	.039
C	0.28	-	0.7	.011	-	.028
C2	1.1	-	1.5	.043	-	.059
C3	2.04	-	2.92	.080	-	.115
E	-	-	10.5	-	-	.413
F	5.8	-	6.93	.228	-	.273
G	4.84	-	5.32	.190	-	.209
H1	13.0	-	16.6	.512	-	.654
H2	12.7	-	14.2	.500	-	.559
L1	2.7	-	4.5	.106	-	.177
L2	1.1	-	1.7	.043	-	.067
R	3.4	-	3.95	.134	-	.156

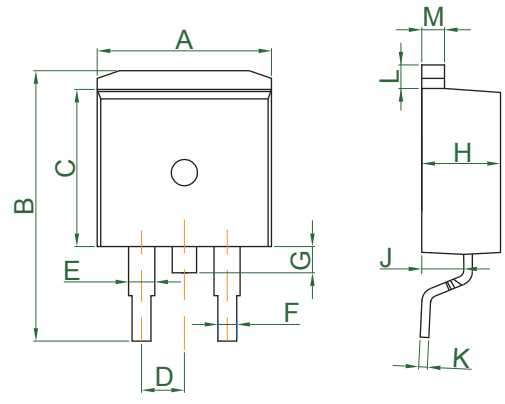
Package Outline Dimensions

ITO-220AB



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.0	-	5.1	.157	-	.201
B	0.3	-	0.9	.012	-	.035
C	0.4	-	0.8	.016	-	.031
C2	2.34	-	3.3	.092	-	.130
C3	2.1	-	3.2	.083	-	.126
D	8.3	-	9.3	.327	-	.366
E	9.5	-	10.7	.374	-	.421
F	6.3	-	7.5	.248	-	.295
G	2.01	-	3.07	.079	-	.121
H	28.0	-	29.8	1.102	-	1.173
L1	2.5	-	4.3	.098	-	.169
L2	0.9	-	1.7	.035	-	.067
L3	2.5	-	3.6	.098	-	.142
R	2.7	-	4.31	.106	-	.170

TO-263



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.66	-	10.66	.380	-	.420
B	14.6	-	16.0	.575	-	.630
C	8.39	-	9.75	.330	-	.384
D	2.35	-	2.85	.093	-	.112
E	1.0	-	1.5	.039	-	.059
F	0.51	-	1.01	.020	-	.040
G	0.7	-	1.77	.028	-	.070
H	4.07	-	4.87	.160	-	.192
J	2.3	-	2.9	.091	-	.114
K	0.3	-	0.73	.012	-	.029
L	1.2	-	1.84	.047	-	.072
M	1.1	-	1.65	.043	-	.065