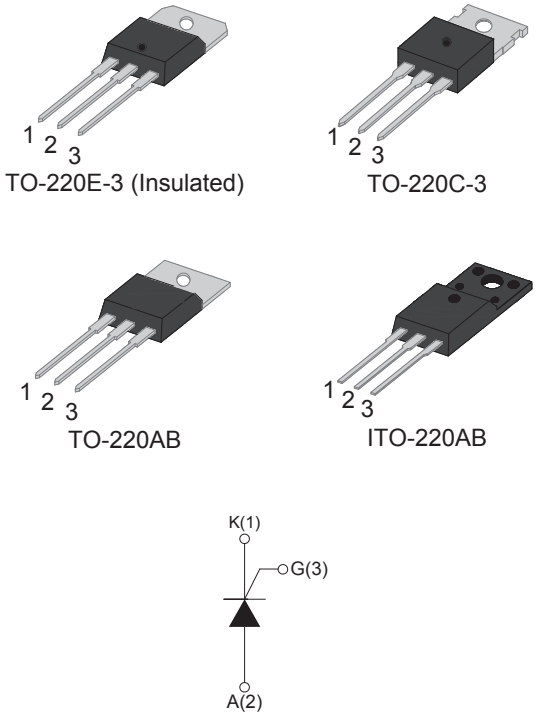
30A SCRs

Features

- Glass passivated chip junction
- High thermal cycling performance
- High voltage capacity
- Very high current surge capability
- Pb-free
- RoHS compliant
- SMD device halogen free

Applications

- Line rectifying 50/60 Hz
- Softstart AC motor control
- DC Motor control
- Power converter
- AC power control
- Lighting and temperature control



Main Features

Symbol	Value	Unit
$I_{T(RMS)}$	30	A
V_{DRM} /V_{RRM}	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 125	°C
Repetitive peak off-state voltage (T_J = 25°C)		V_{DRM}	1200	V
Repetitive peak reverse voltage (T_J = 25°C)		V_{RRM}	1200	V
RMS on-state current	TO-220E-3(Ins) (T_C=97°C)	$I_{T(RMS)}$	30	A
	TO-220C-3 (T_C=103°C)			
	TO-220AB (T_C=103°C)			
	ITO-220AB (T_C=95°C)			
Non repetitive surge peak on-state current (180° conduction angle, F = 50Hz, t_P = 10ms, half full cycle)		I_{TSM}	300	A
I^2t value for fusing (t_P = 10ms)		I^2t	450	A^2s
Critical rate of rise of on-state current ($I_G = 2 \times I_{GT}$, $t_r \leq 100$ns)		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)

Symbol	Test Condition		Value	Unit
I_{GT}	V_D = 12V, R_L = 100Ω	MAX	35	mA
V_{GT}	V_D = 12V, R_L = 100Ω	MAX	1.3	V
V_{GD}	V_D = V_{DRM}, T_J = 125°C	MIN	0.2	V
I_L	I_G = 1.2×I_{GT}	MAX	180	mA
I_H	V_{AK} = 12V, I_{GK} = 100mA	MAX	120	mA
dV/dt	V_D = 67% V_{DRM}, Gate open, T_J = 125°C	MIN	500	V/μs

Static Characteristics

Symbol	Test Condition			Value	Unit
V_{TM}	I_{TM} = 55A, t_P = 380μs	T_J = 25°C	MAX	1.65	V
I_{DRM} I_{RRM}	V_D = V_{DRM}, V_R = V_{RRM}	T_J = 25°C	MAX	20	μA
		T_J = 125°C		4	mA

Thermal Resistances

Symbol	Parameter		Value	Unit
$R_{\theta JC}$	Junction to case(AC)	TO-220E-3(Ins)	1.7	°C/W
		TO-220C-3	0.9	
		TO-220AB	0.9	
		ITO-220AB	1.8	

Ordering Information

Ordering Type	Marking	Package	Quantity	Delivery Mode
SCR30xx-yyEI	SCR30xx-yyEI	TO-220E-3(Ins)	50	Tube
SCR30xx-yyC	SCR30xx-yyC	TO-220C-3	50	Tube
SCR30xx-yyT	SCR30xx-yyT	TO-220AB	50	Tube
SCR30xx-yyTF	SCR30xx-yyTF	ITO-220AB	50	Tube

Note : xx = sensitivity, yy = voltage

Ordering Information Scheme

SCR 30 35 - 12 C

SCR series
SCR = SCRs (1000V ↑)

$I_{T(RMS)}$
30 = 30A

I_{GT} Sensitivity
35 = 35mA

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

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

Ratings and Characteristics Curves

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

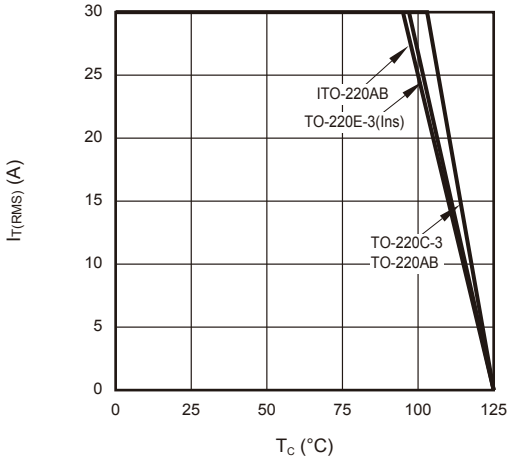


Fig.2 - Surge peak on-state current versus number of cycles

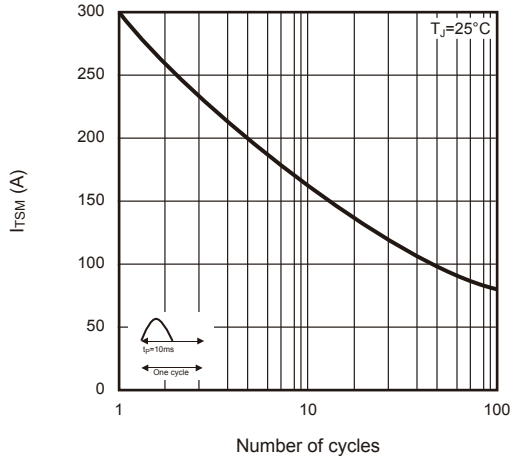


Fig.3 - On-state characteristics (maximum values)

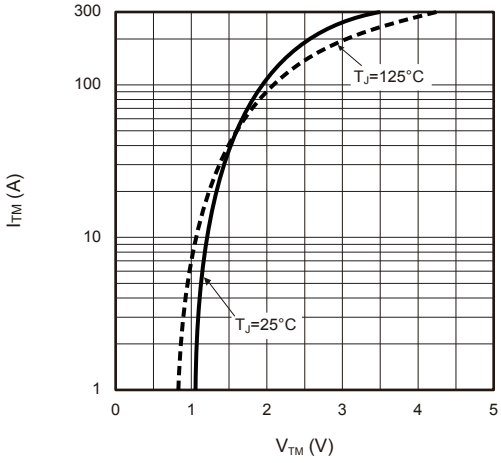


Fig.4 - Maximum power dissipation versus RMS on-state current

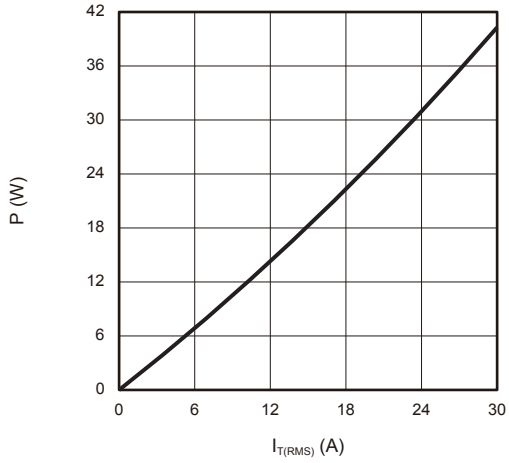
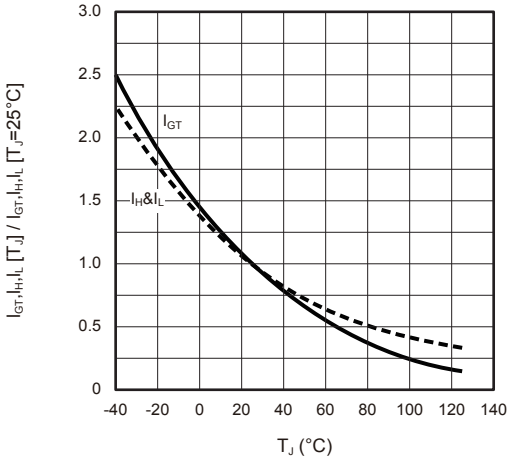
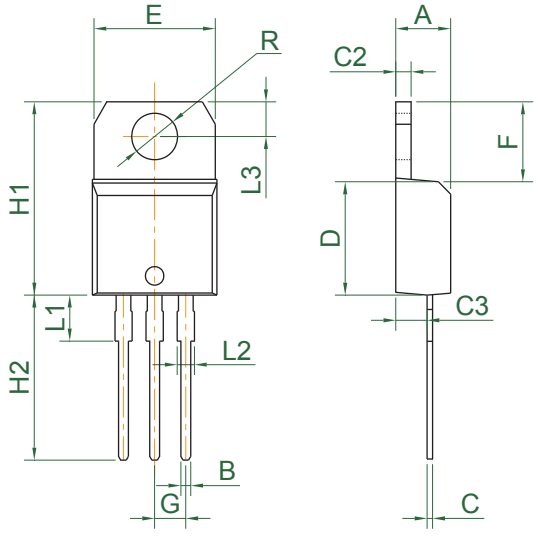


Fig.5 - Relative variations of gate trigger current, holding current and latching current versus junction temperature



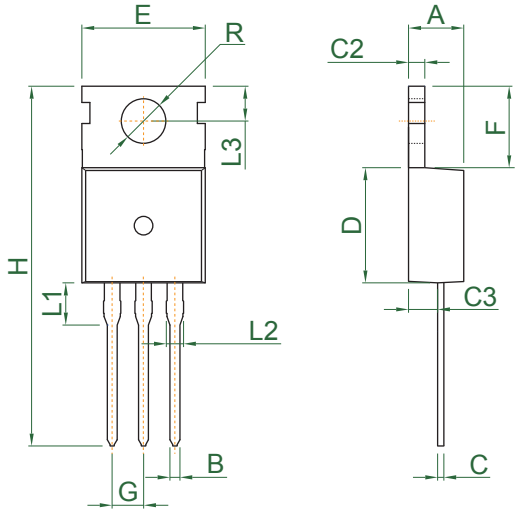
Package Outline Dimensions

TO-220E-3(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

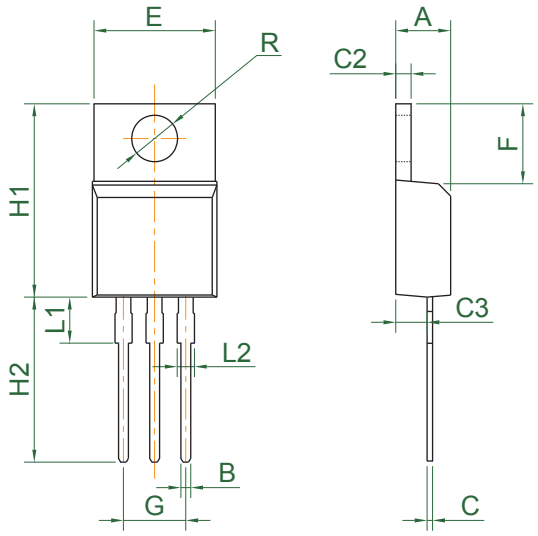
TO-220C-3



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4	-	4.6	.173	-	.181
B	0.7	-	0.9	.028	-	.035
C	0.45	-	0.6	.018	-	.024
C2	1.23	-	1.48	.048	-	.058
C3	2.2	-	2.6	.087	-	.102
D	8.9	-	9.9	.350	-	.390
E	9.9	-	10.3	.390	-	.406
F	6.3	-	6.9	.248	-	.272
G	2.4	-	2.7	.094	-	.106
H	28.0	-	29.8	1.102	-	1.173
L1	3.1	-	3.7	.122	-	.146
L2	1.14	-	1.7	.045	-	.067
L3	2.65	-	2.95	.104	-	.116
R	3.45	-	3.65	.136	-	.144

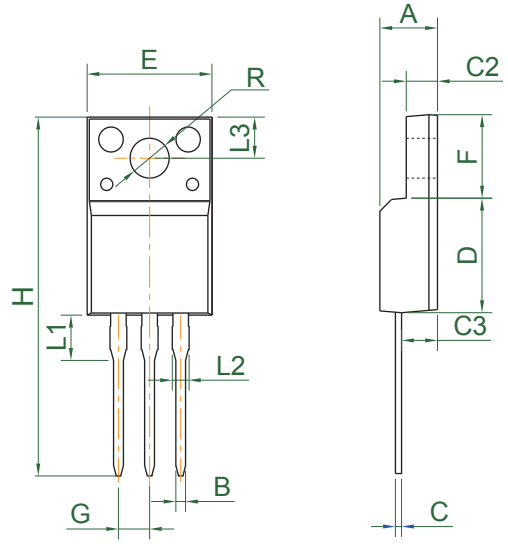
Package Outline Dimensions

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

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