

25A SCRs

Features

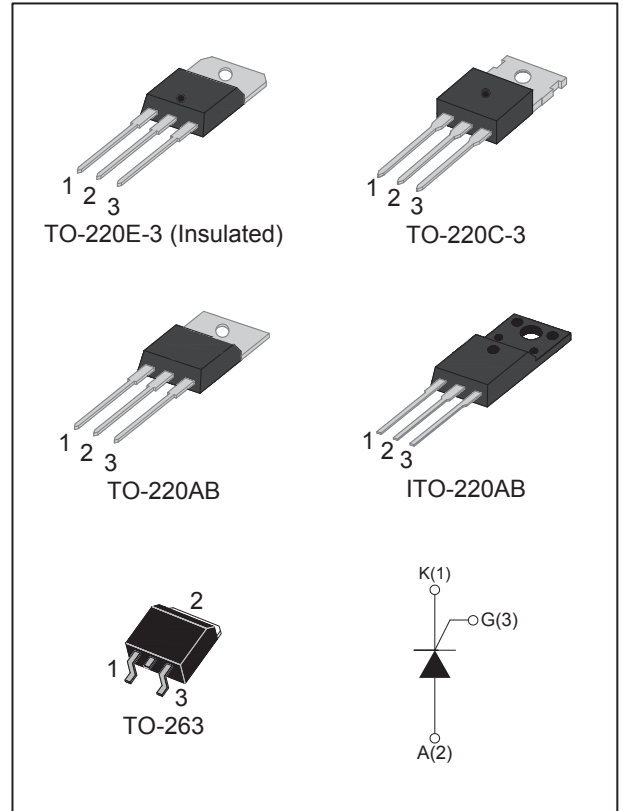
- Glass passivated chip junction
- High thermal cycling performance
- High voltage capacity
- Very high current surge capability
- Pb-free
- RoHS compliant
- SMD device halogen free

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
$I_{T(RMS)}$	25	A
V_{DRM} / V_{RRM}	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 125	°C
Repetitive peak off-state voltage ($T_J = 25^\circ\text{C}$)	V_{DRM}	800 / 1200	V
Repetitive peak reverse voltage ($T_J = 25^\circ\text{C}$)	V_{RRM}	800 / 1200	V
RMS on-state current	TO-220E-3(Ins) ($T_C=85^\circ\text{C}$)	25	A
	TO-220C-3 ($T_C=100^\circ\text{C}$)		
	TO-220AB ($T_C=100^\circ\text{C}$)		
	ITO-220AB ($T_C=85^\circ\text{C}$)		
	TO-263 ($T_C=107^\circ\text{C}$)		
Non repetitive surge peak on-state current (180° conduction angle, $F = 50\text{Hz}$, $t_P = 10\text{ms}$, half full cycle)	I_{TSM}	300	A
I^2t value for fusing ($t_P = 10\text{ms}$)	I^2t	450	A^2s
Critical rate of rise of on-state current ($I_G = 2 \times I_{GT}$, $t_r \leq 100\text{ns}$)	di/dt	50	$\text{A}/\mu\text{s}$
Peak gate current	I_{GM}	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W

Electrical Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Test Condition		Value	Unit
I_{GT}	$V_D = 12\text{V}, R_L = 100\Omega$	MAX	50	mA
V_{GT}	$V_D = 12\text{V}, R_L = 100\Omega$	MAX	1.3	V
V_{GD}	$V_D = V_{DRM}, T_J = 125^\circ\text{C}$	MIN	0.2	V
I_L	$I_G = 1.2 \times I_{GT}$	MAX	180	mA
I_H	$V_{AK} = 12\text{V}, I_{GK} = 100\text{mA}$	MAX	150	mA
dV/dt	$V_D = 67\% V_{DRM}, \text{Gate open}, T_J = 125^\circ\text{C}$	MIN	1000	V/ μs

Static Characteristics

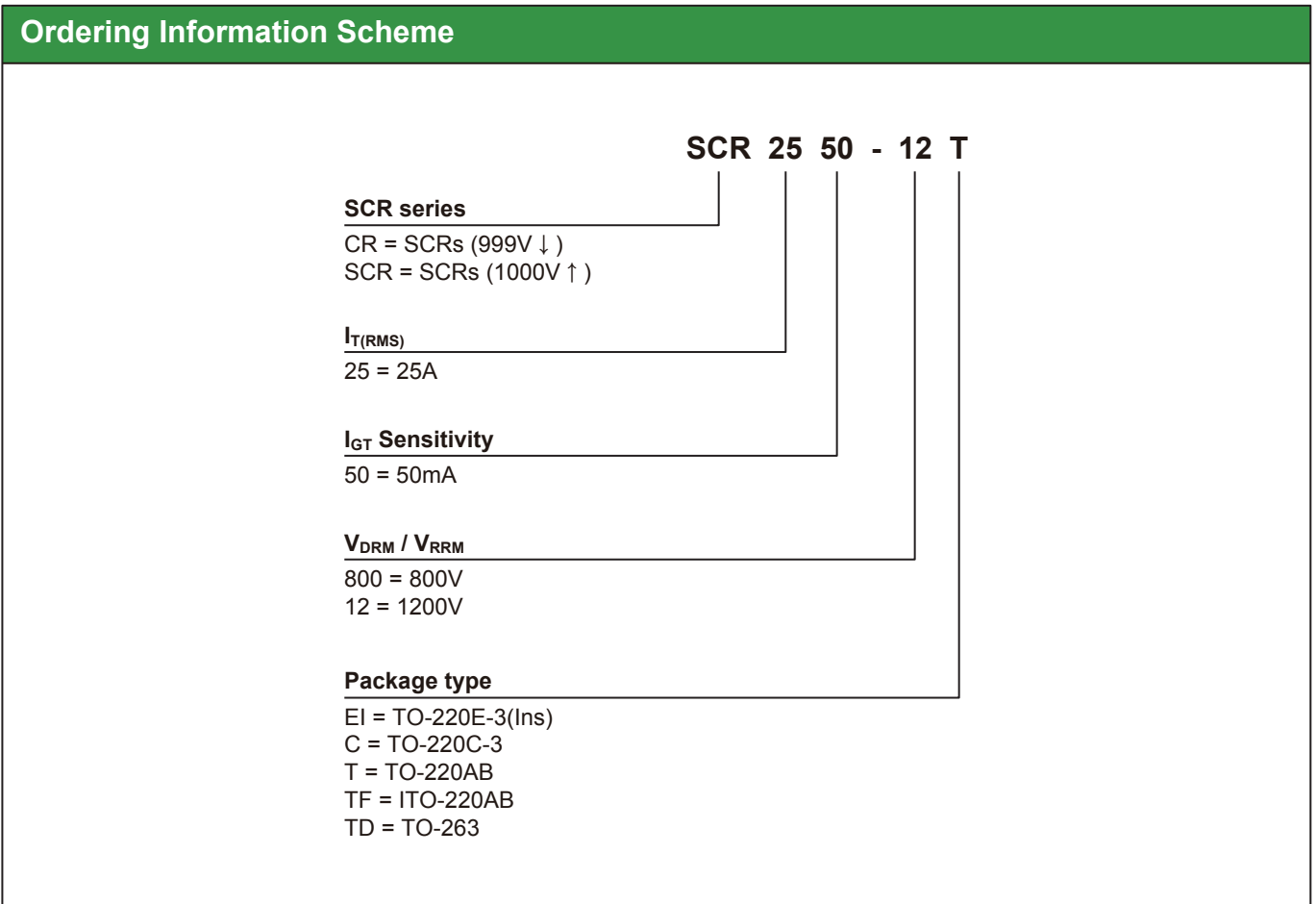
Symbol	Test Condition		Value	Unit
V_{TM}	$I_{TM} = 50\text{A}, t_p = 380\mu\text{s}$	$T_J = 25^\circ\text{C}$ MAX	1.6	V
I_{DRM} I_{RRM}	$V_D = V_{DRM}, V_R = V_{RRM}$	$T_J = 25^\circ\text{C}$ MAX	5	μA
		$T_J = 125^\circ\text{C}$ MAX	4	mA

Thermal Resistances

Symbol	Parameter	Value	Unit	
$R_{\theta JC}$	Junction to case(AC)	TO-220E-3(Ins)	1.7	$^\circ\text{C/W}$
		TO-220C-3	1.0	
		TO-220AB	1.0	
		ITO-220AB	1.7	
		TO-263	1.0	

Ordering Information				
Ordering Type	Marking	Package	Quantity	Delivery Mode
CR25xx-800EI	CR25xx-800EI	TO-220E-3(Ins)	50	Tube
CR25xx-800C	CR25xx-800C	TO-220C-3	50	Tube
CR25xx-800T	CR25xx-800T	TO-220AB	50	Tube
CR25xx-800TF	CR25xx-800TF	ITO-220AB	50	Tube
CR25xx-800TD	CR25xx-800TD	TO-263	50	Tube
CR25xx-800TD	CR25xx-800TD	TO-263	800	13" diameter reel
SCR25xx-yyEI	SCR25xx-yyEI	TO-220E-3(Ins)	50	Tube
SCR25xx-yyC	SCR25xx-yyC	TO-220C-3	50	Tube
SCR25xx-yyT	SCR25xx-yyT	TO-220AB	50	Tube
SCR25xx-yyTF	SCR25xx-yyTF	ITO-220AB	50	Tube
SCR25xx-yyTD	SCR25xx-yyTD	TO-263	50	Tube
SCR25xx-yyTD	SCR25xx-yyTD	TO-263	800	13" diameter reel

Note : xx = sensitivity, yy = voltage



Ratings and Characteristics Curves

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

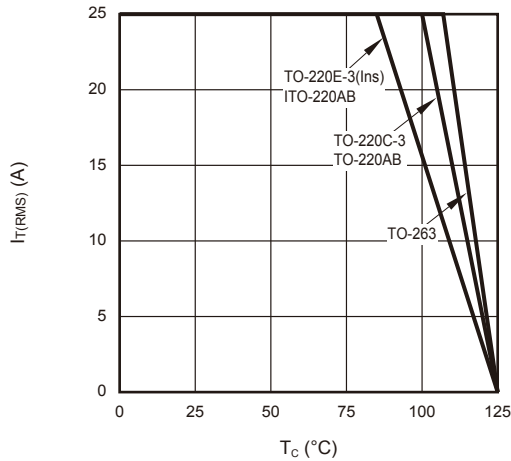


Fig.2 - Surge peak on-state current versus number of cycles

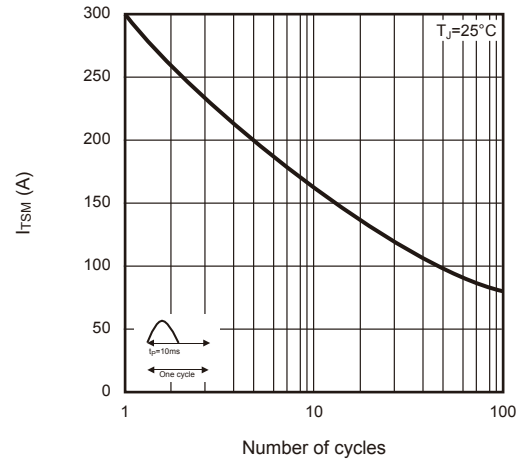


Fig.3 - On-state characteristics (maximum values)

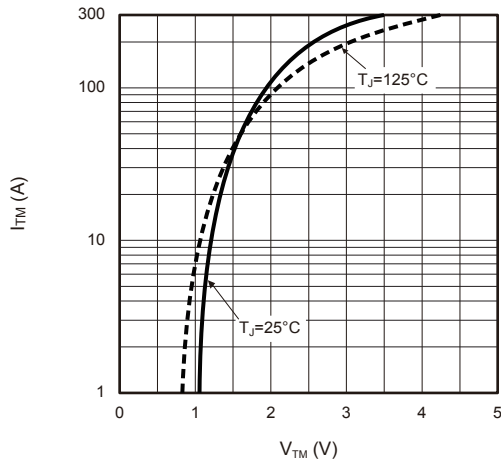


Fig.4 - Maximum power dissipation versus RMS on-state current

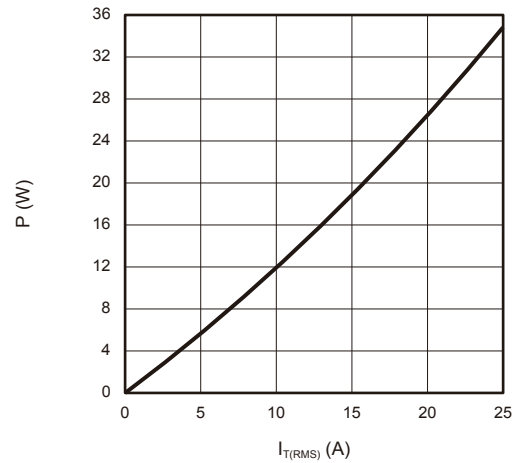
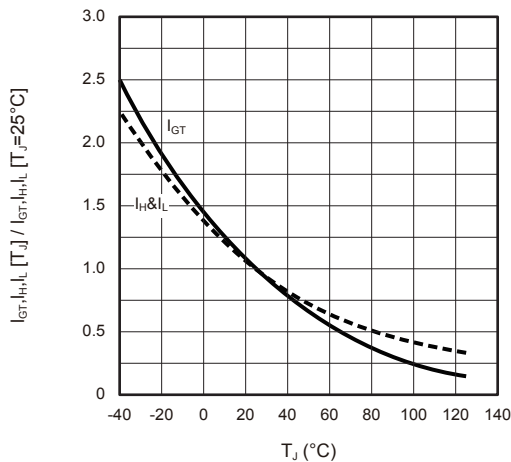
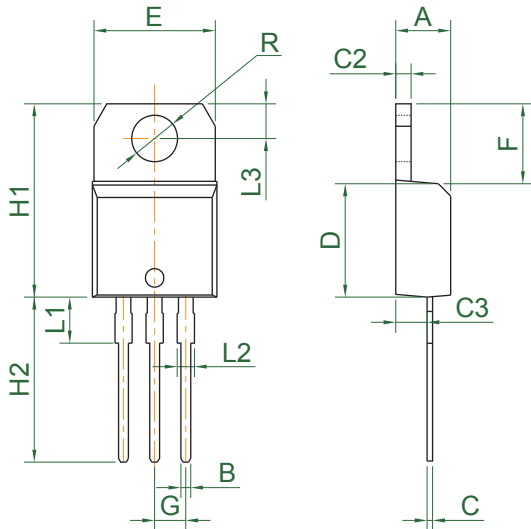


Fig.5 - Relative variations of gate trigger current, holding current and latching current versus junction temperature



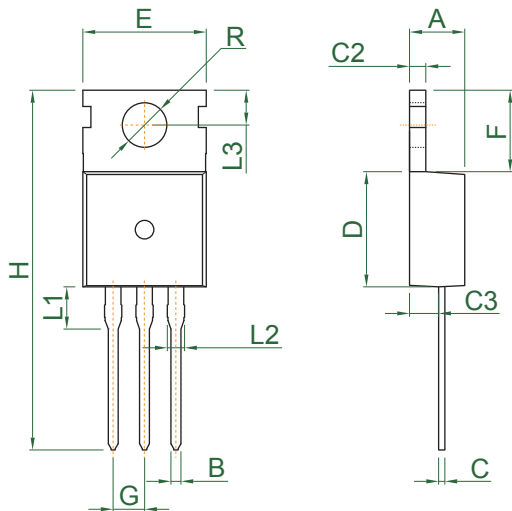
Package Outline Dimensions

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

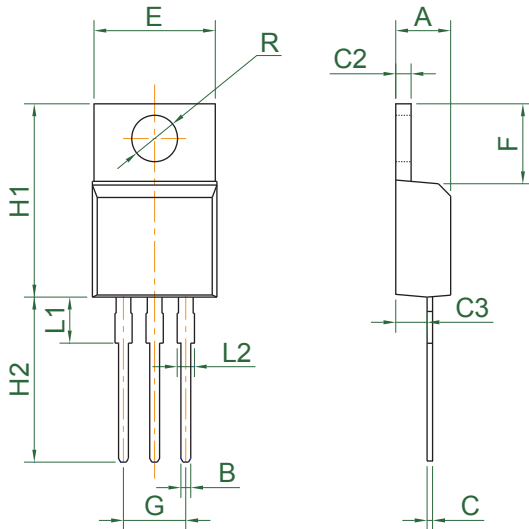
TO-220C-3



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

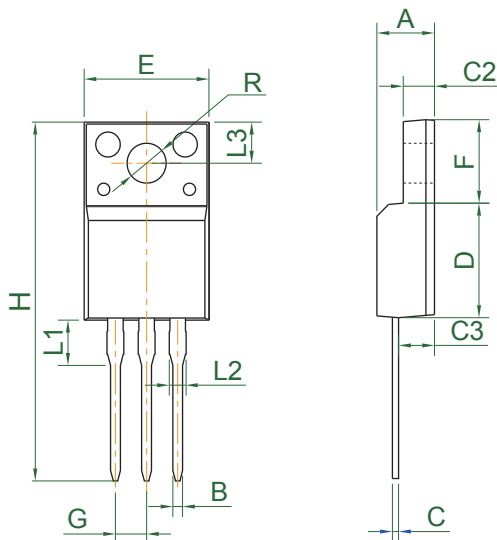
Package Outline Dimensions

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

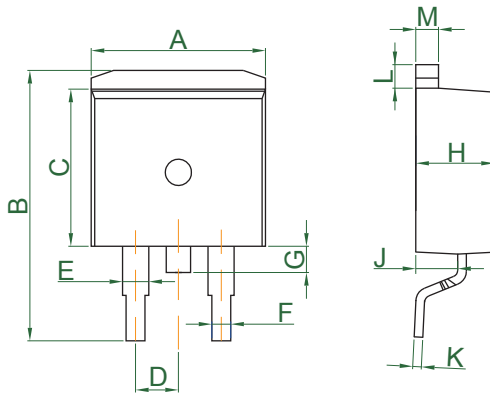
ITO-220AB



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

Package Outline Dimensions

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