

Product Summary

Symbol	Value	Unit
$I_{T(RMS)}$	55	A
$V_{DRM} V_{RRM}$	1200	V
V_{TM}	1.8	V

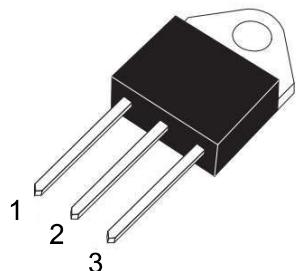
Feature

- High thermal cycling performance
- High voltage capacity
- Very high current surge capability

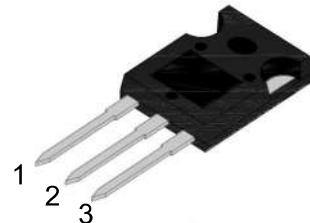
Application

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

Package

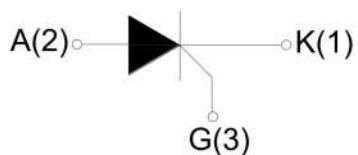


TO-3P Insulated



TO-247

Circuit diagram



Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Repetitive peak off-state voltage	V _{DRM}	1200	V
Repetitive peak reverse voltage	V _{RRM}	1200	V
Non repetitive surge peak Off-state voltage	V _{DSM}	V _{DRM} +100	V
Non repetitive peak reverse voltage	V _{RSM}	V _{RRM} +100	V
RMS on-state current	I _{T(RMS)}	55	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)	I _{TSM}	550	A
Average on-state current (180° conduction angle)	I _{T(AV)}	35	A
I ² t value for fusing (tp=10ms)	I ² t	1500	A
Critical rate of rise of on-state current (I _G =2×I _{GT})	dI/dt	150	A/μs
Peak gate current	I _{GM}	5	A
Average gate power dissipation	P _{G(AV)}	2	W
Junction Temperature	T _J	-40 ~ +125	°C
Storage Temperature	T _{STG}	-40 ~ +150	°C

Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition		Value	Unit	
Gate trigger current	I _{GT}	V _D =12V R = 140Ω	MAX.	60	mA	
Gate trigger voltage	V _{GT}		MAX.	1.3	V	
Gate non-trigger voltage	V _{GD}	V _D =V _{DRM} T _j =125°C	MIN.	0.2	V	
latching current	I _L	I _G =1.2I _{GT}	MAX.	250	mA	
Holding current	I _H	I _T =50mA	MAX.	200	mA	
Critical-rate of rise of commutation voltage	dV/dt	V _D =2/3V _{DRM} Gate Open T _j =125°C	MIN.	800	V/μs	
STATIC CHARACTERISTICS						
Forward "on" voltage	V _{TM}	I _{TM} =80A tp=380μs	MAX.	1.8	V	
Repetitive Peak Off-State Current	I _{DRM}	V _D =V _{DRM} V _R =V _{RRM}	T _j =25°C	MAX.	20	μA
Repetitive Peak Reverse Current	I _{RRM}		T _j =125°C	MAX.	8	mA
THERMAL RESISTANCES						
Thermal resistance	R _{th(j-c)}	TO-3P	TYP.	0.65	°C/W	
	R _{th(j-c)}	TO-247	TYP.	0.6	°C/W	

Typical Characteristics

FIG.1 Maximum power dissipation versus on-state current

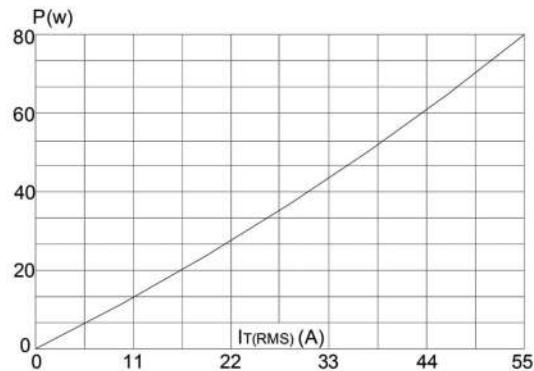


FIG.2: on-state current versus case temperature

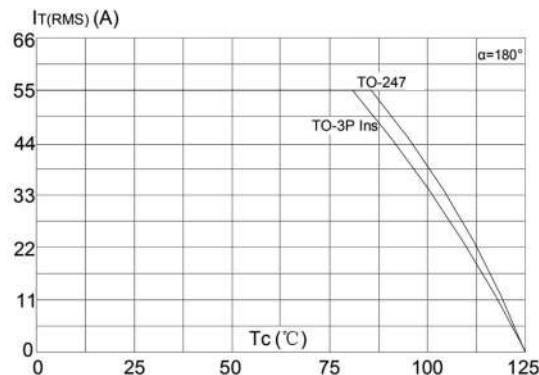


FIG.3: Surge peak on-state current versus number of cycles

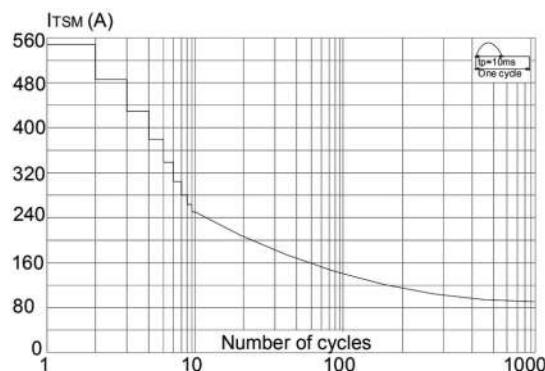


FIG.4: On-state characteristics (maximum values)

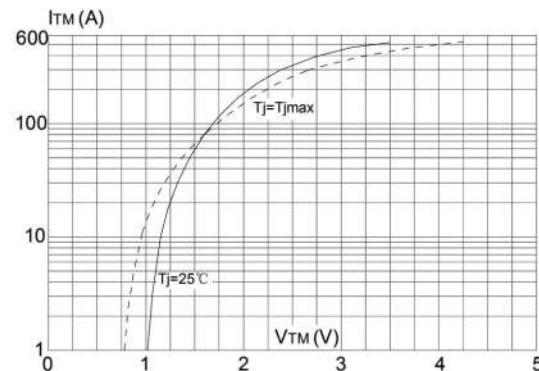


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t

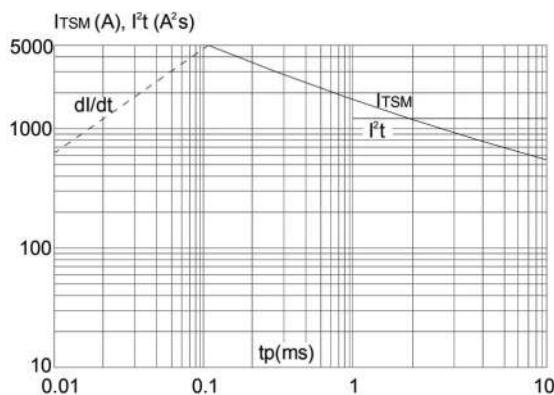
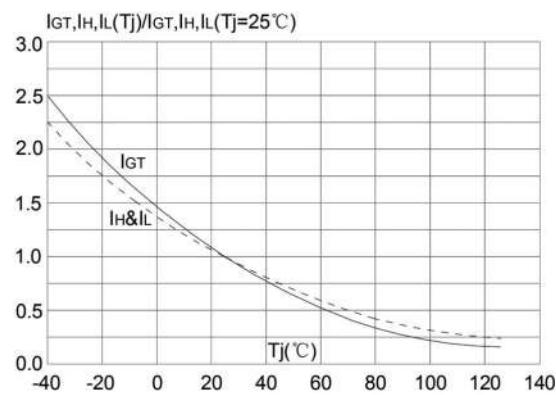
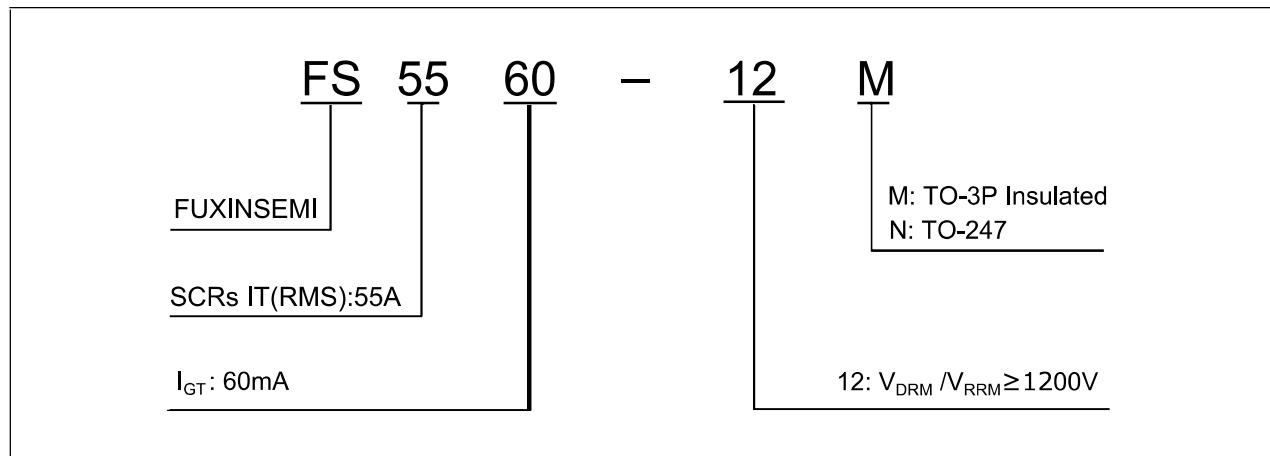


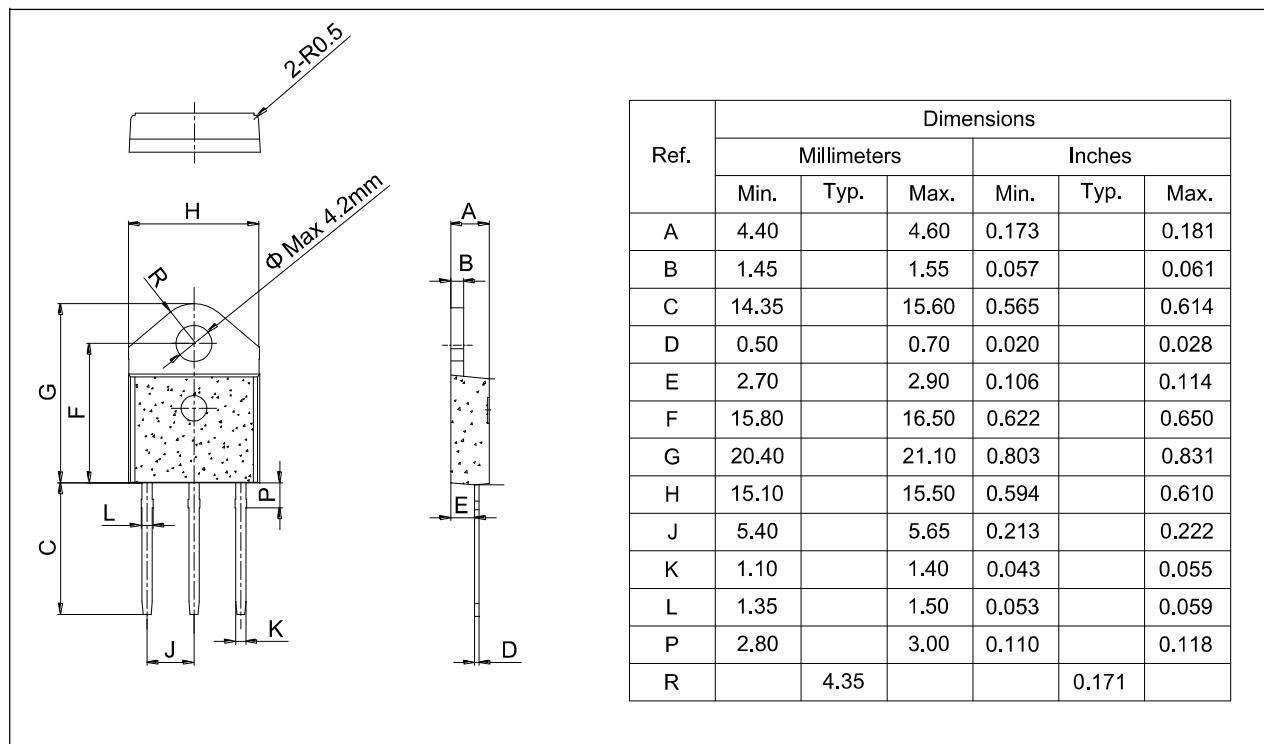
FIG.6: Relative variations of gate trigger current holding current and latching current versus junction temperature



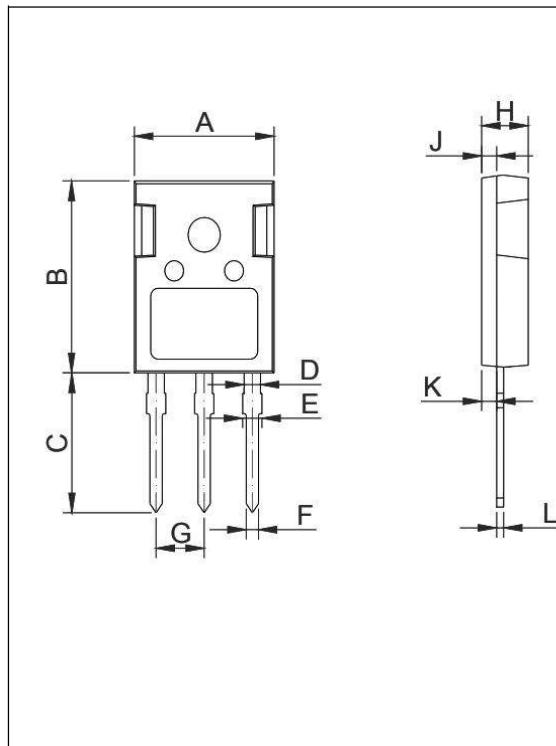
Ordering Information



TO-3P Insulated Package Information



TO-247 Package Information



The diagram illustrates the TO-247 package dimensions. The front view shows the top surface with lead spacing 'A' and lead height 'B'. The side view shows the overall height 'H' and the lead thickness 'L'. Dimensions 'C' and 'G' are also indicated.

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.50	15.80	16.10	0.610	0.622	0.634
B	20.80	21.00	22.20	0.819	0.828	0.874
C	19.70	20.00	20.30	0.776	0.787	0.799
D	1.80	2.00	2.20	0.071	0.079	0.087
E	1.90	2.10	2.30	0.075	0.083	0.091
F	1.00	1.20	1.40	0.039	0.047	0.055
G		5.44			0.214	
H	4.80	5.00	5.20	0.189	0.197	0.205
J	1.90	2.00	2.10	0.075	0.079	0.083
K	2.20	2.35	2.50	0.087	0.093	0.098
L	0.41	0.60	0.79	0.016	0.024	0.031