

Super FAP-G Series

N-CHANNEL SILICON POWER MOSFET

Features

- High speed switching
- Low on-resistance
- No secondary breakdown
- Low driving power
- Avalanche-proof

Applications

- Switching regulators
- UPS (Uninterruptible Power Supply)
- DC-DC converters

Maximum ratings and characteristic Absolute maximum ratings

(Tc=25°C unless otherwise specified)

Item	Symbol	Ratings	Unit
Drain-source voltage	V _{DS}	600	V
	V _{DSX} *5	600	V
Continuous drain current	I _D	±16	A
Pulsed drain current	I _{D(puls)}	±64	A
Gate-source voltage	V _{GS}	±30	V
Repetitive or non-repetitive	I _{AR} *2	16	A
Maximum avalanche energy	E _{AS} *1	242.7	mJ
Maximum drain-source dV/dt	dV _{DS} /dt *4	20	kV/μs
Peak diode recovery dV/dt	dV/dt *3	5	kV/μs
Max. power dissipation	P _D	T _a =25°C	2.02
		T _c =25°C	270
Operating and storage temperature range	T _{ch}	+150	°C
	T _{slg}	-55 to +150	°C

*1 L=1.74mH, V_{cc}=60V, See to Avalanche Energy Graph *2 T_{ch}≤150°C

*3 I_F≤-I_D, -di/dt=50A/μs, V_{cc}≤BV_{DSS}, T_{ch}≤150°C *4 V_{DS}≤600V *5 V_{GS}=-30V

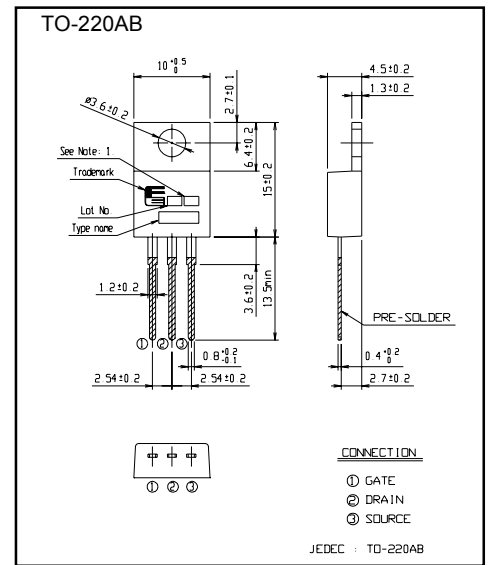
Electrical characteristics (T_c =25°C unless otherwise specified)

Item	Symbol	Test Conditions			
Drain-source breakdown voltage	V _{(BR)DSS}	I _D =250μA V _{GS} =0V	600		V
Gate threshold voltage	V _{GS(th)}	I _D =250μA V _{DS} =V _{GS}	3.0	5.0	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =600V V _{GS} =0V		25	μA
		V _{DS} =480V V _{GS} =0V		250	
Gate-source leakage current	I _{GSS}	V _{GS} =±30V V _{DS} =0V	10	100	nA
Drain-source on-state resistance	R _{DS(on)}	I _D =8A V _{GS} =10V	0.42	0.57	Ω
Forward transconductance	g _{fs}	I _D =8A V _{DS} =25V	6.5	13	S
Input capacitance	C _{iss}	V _{DS} =25V	1590	2390	pF
Output capacitance	C _{oss}	V _{GS} =0V	200	300	
Reverse transfer capacitance	C _{rss}	f=1MHz	11	17	
Turn-on time t _{on}	td(on)	V _{CC} =300V I _D =8A	29	43.5	ns
	t _r	V _{GS} =10V	16	24	
Turn-off time t _{off}	td(off)	R _{GS} =10Ω	58	87	
	t _r		8	12	
Total Gate Charge	Q _G	V _{CC} =300V	34	51	nC
Gate-Source Charge	Q _{GS}	I _D =16A	12	18	
Gate-Drain Charge	Q _{GD}	V _{GS} =10V	10	15	
Avalanche capability	I _{AV}	L=1.74mH T _{ch} =25°C	16		A
Diode forward on-voltage	V _{SD}	I _F =16A V _{GS} =0V T _{ch} =25°C	1.00	1.50	V
Reverse recovery time	t _{rr}	I _F =16A V _{GS} =0V	0.68		μs
Reverse recovery charge	Q _{rr}	-di/dt=100A/μs T _{ch} =25°C	7.8		μC

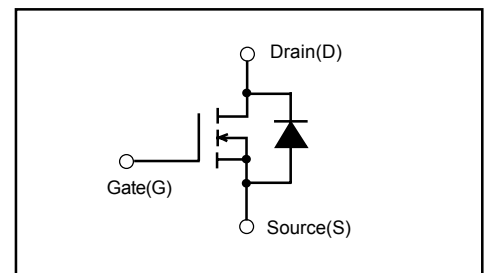
Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R _{th(ch-c)}	channel to case			0.463	°C/W
	R _{th(ch-a)}	channel to ambient			62.0	°C/W

Outline Drawings [mm]



Equivalent circuit schematic



Characteristics

