

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
Continuous drain current	I _D	±12	A
Pulsed drain current	I _{D(puls)}	±48	A
Gate-source voltage	V _{GS}	±30	V
Repetitive or non-repetitive	IAR *2	12	A
Maximum Avalanche Energy	EAS *1	183	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	2.16
		T _c =25°C	70
Operating and storage temperature range	T _{ch}	+150	°C
	T _{stg}	-55 to +150	°C
Isolation Voltage	V _{ISO} *5	2	kVrms

*1 L=2.33mH, 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 t=60sec, f=60Hz

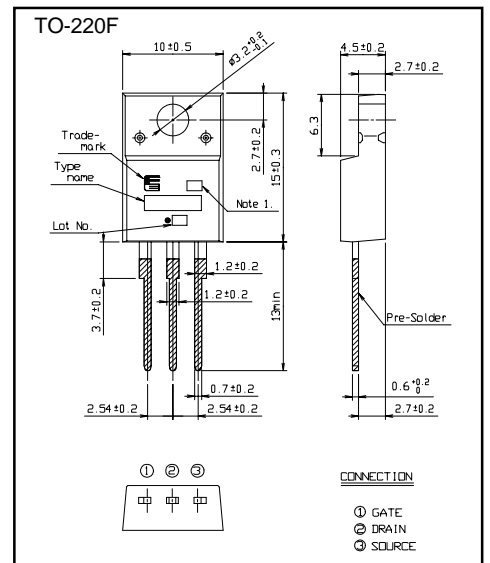
Electrical characteristics (Tc =25°C unless otherwise specified)

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	V _{(BR)DSS}	I _D =1mA 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 =5A V _{GS} =10V		0.58	0.75	Ω
Forward transconductance	g _{fs}	I _D =5A V _{DS} =25V	4	8		S
Input capacitance	C _{iss}	V _{DS} =25V		1200	1800	pF
Output capacitance	C _{oss}	V _{GS} =0V		140	210	
Reverse transfer capacitance	C _{rss}	f=1MHz		6	9	
Turn-on time t _{on}	td(on)	V _{CC} =300V I _D =5A		17	26	ns
	t _r	V _{GS} =10V		15	23	
Turn-off time t _{off}	td(off)	R _{GS} =10 Ω		35	53	ns
	t _r			7	11	
Total Gate Charge	Q _G	V _{CC} =250V		30	45	nC
Gate-Source Charge	Q _{GS}	I _D =10A		11	16.5	
Gate-Drain Charge	Q _{GD}	V _{GS} =10V		10	15	
Avalanche capability	I _{AV}	L=2.33mH T _{ch} =25°C	12			A
Diode forward on-voltage	V _{SD}	I _F =10A V _{GS} =0V T _{ch} =25°C		1.00	1.50	V
Reverse recovery time	t _{rr}	I _F =10A V _{GS} =0V		0.75		μs
Reverse recovery charge	Q _{rr}	-di/dt=100A/μs T _{ch} =25°C		5.0		μC

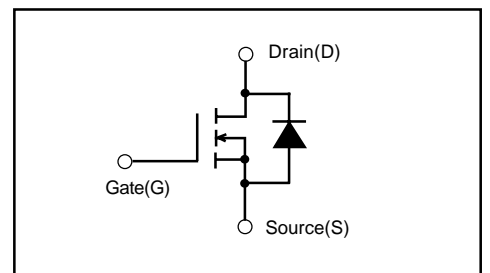
Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R _{th(ch-c)}	channel to case			1.79	°C/W
	R _{th(ch-a)}	channel to ambient			58.0	°C/W

Outline Drawings [mm]



Equivalent circuit schematic



Characteristics

