

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	Remarks
Drain-source voltage	V _{DS}	600	V	
	V _{DSX}	600	V	V _{GS} =-30V
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}	16	A	T _{ch} ≤ 150°C
Maximum avalanche energy	E _{AS}	242.7	mJ	*1
Maximum drain-source dV/dt	dV _{DS} /dt	20	kV/μs	V _{DS} ≤ 600V
Peak diode recovery dV/dt	dV/dt	5	kV/μs	*2
Max. power dissipation	P _D	2.16	W	T _a =25°C
		97		T _c =25°C
Operating and storage temperature range	T _{ch}	+150	°C	
	T _{stg}	-55 to +150	°C	
Isolation voltage	V _{ISO}	2	kVrms	t=60sec, f=60Hz

*1 L=1.74mH, V_{cc}=60V, See to Avalanche Energy Graph

*2 I_F ≤ -I_D, -di/dt=50A/μs, V_{cc} ≤ BV_{DSS}, T_{ch} ≤ 150°C

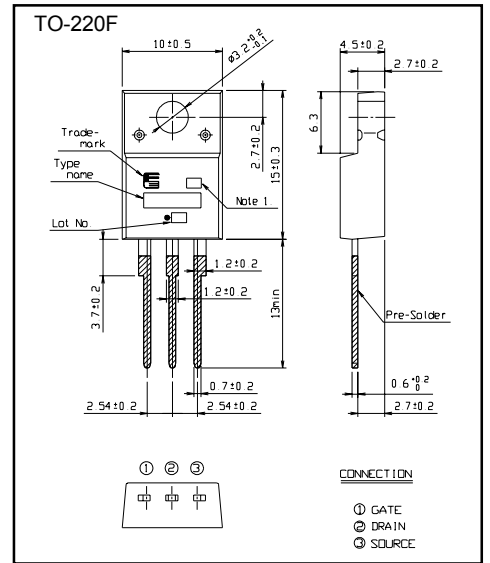
● Electrical characteristics (T_c =25°C unless otherwise specified)

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		ns
Turn-on time t _{on}	t _{d(on)}	V _{CC} =300V I _D =8A	29		43.5		
	t _r	V _{GS} =10V	16		24		
Turn-off time t _{off}	t _{d(off)}	R _{GS} =10 Ω	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

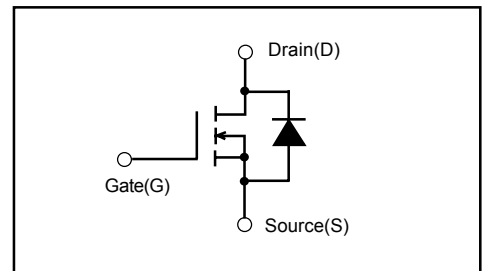
● Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R _{th(ch-c)}	channel to case			1.289	°C/W
	R _{th(ch-a)}	channel to ambient			58.0	°C/W

■ Outline Drawings [mm]



■ Equivalent circuit schematic



Characteristics

