

# Super FAP-G Series

# N-CHANNEL SILICON POWER MOSFET

## Features

· High speed switching Low on-resistance No secondary breadown · Low driving power

Avalanche-proof

# Applications

 Switching regulators DC-DC converters

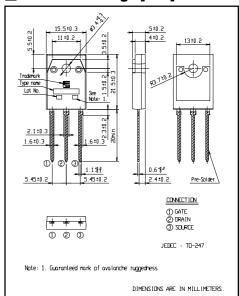
• UPS (Uninterruptible Power Supply)

# ■ Maximum ratings and characteristicAbsolute maximum ratings

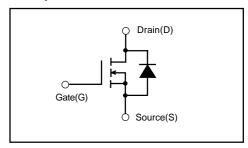
#### ● (Tc=25°C unless otherwise specified)

Item	Symbol	Ratings	Unit	Remarks
Drain-source voltage	VDS	500	V	
	VDSX	500	V	Vgs=-30V
Continuous drain current	lD	±19	Α	
Pulsed drain current	ID(puls]	±76	Α	
Gate-source voltage	Vgs	±30	V	
Non-Repetitive	las	19	Α	Tch≦150°C
Maximum avalanche current				
Non-Repetitive	EAS	245.3	mJ	L=1.25mH
Maximum avalanche energy				Vcc=50V *2
Maximum Drain-Source dV/dt	dVps/dt	20	kV/s	VDS≦500V
Peak diode recovery dV/dt	dV/dt	5	kV/µs	*3
Max. power dissipation	Po	2.50	W	Ta=25°C
		235		Tc=25°C
Operating and storage	Tch	+150	℃	
temperature range	Tstg	-55 to +150	℃	

# ■ Outline Drawings [mm]



## **■** Equivalent circuit schematic



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

Item	Symbol	Test Conditions	Min.	Тур.	Max.	Units
Drain-source breakdown voltaget	V(BR)DSS	ID= 250µA VGS=0V	500			V
Gate threshold voltage	VGS(th)	ID= 250µA VDS=VGS	3.0		5.0	V
Zero gate voltage drain current	IDSS	VDS=500V VGS=0V Tch=25°C			25	μΑ
		VDS=400V VGS=0V Tch=125°C			250	
Gate-source leakage current	IGSS	VGS=±30V VDS=0V		10	100	nA
Drain-source on-state resistance	RDS(on)	ID=9.5A VGS=10V		0.29	0.38	Ω
Forward transcondutance	<b>g</b> fs	ID=9.5A VDS=25V	7.5	15		S
Input capacitance	Ciss	VDS=25V		1560	2340	pF
Output capacitance	Coss	Vgs=0V		230	345	
Reverse transfer capacitance	Crss	f=1MHz		8	12	
Turn-on time ton	td(on)	Vcc=300V ID=9.5A		29	43.5	ns
	tr	Vgs=10V		13	19.5	
Turn-off time toff	td(off)	Rgs=10 $\Omega$		56	84	
	tf			8	12	
Total Gate Charge	QG	Vcc=250V		34	51	nC
Gate-Source Charge	Qgs	ID=19A		13	19.5	
Gate-Drain Charge	QGD	Vgs=10V		10	15	
Avalanche capability	lav	L=1.25mH Tch=25°C	19			Α
Diode forward on-voltage	VsD	IF=19A VGS=0V Tch=25°C		1.20	1.50	V
Reverse recovery time	trr	IF=19A VGS=0V		0.57		μs
Reverse recovery charge	Qrr	-di/dt=100A/µs T <sub>ch</sub> =25°C		7.0		μC

#### **Thermalcharacteristics**

Item	Symbol	Test Conditions	Min.	Тур.	Max.	Units
Thermal resistance	Rth(ch-c)	channel to case			0.532	°C/W
	Rth(ch-a)	channel to ambient			50.0	°C/W

<sup>\*2</sup> See to Avalanche Energy Graph \*3 IF≦-ID, -di/dt=50A/µs, Vcc≦BVDss, Tch≦150°C

# Characteristics

