

Super FAP-G Series

Features

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

Applications

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

Maximum ratings and characteristicAbsolute maximum ratings

● (T_c=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	±43	A	
Pulsed drain current	I _D (puls)	±172	A	
Gate-source voltage	V _{GS}	±30	V	
Non-Repetitive	I _{AS}	43	A	T _{ch} =25°C
Maximum avalanche current				*1
Repetitive or	I _{AR}	21.5	A	T _{ch} ≤150°C
Maximum avalanche current				*1
Non-Repetitive	E _{AS}	808.9	mJ	L=802μH
Maximum avalanche energy				V _{CC} =60V *2
Maximum Drain-Source dV/dt	dV _{DS} /dt	20	kV/s	V _{DS} ≤600V
Peak diode recovery dV/dt	dV/dt	5	kV/μs	*3
Max. power dissipation	P _D	2.50	W	T _a =25°C
		600		T _c =25°C
Operating and storage temperature range	T _{ch}	+150	°C	
	T _{stg}	-55 to +150	°C	

*1 See to Avalanche Current Graph

*2 See to Avalanche Energy Graph

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

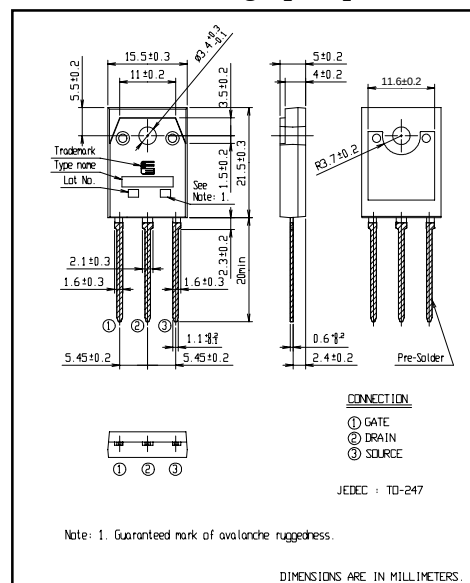
Electrical characteristics (T_c =25°C unless otherwise specified)

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
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 T _{ch} =25°C			25	μA
		V _{DS} =480V V _{GS} =0V T _{ch} =125°C			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 =26A V _{GS} =10V		0.12	0.16	Ω
Forward transconductance	g _{fs}	I _D =21.5A V _{DS} =25V	15	30		S
Input capacitance	C _{iss}	V _{DS} =25V		5360	8040	pF
Output capacitance	C _{oss}	V _{GS} =0V		680	1020	
Reverse transfer capacitance	C _{rss}	f=1MHz		40	60	
Turn-on time t _{on}	td(on)	V _{CC} =300V I _D =21.5A		80	120	ns
	t _r	V _{GS} =10V		87	131	
Turn-off time t _{off}	td(off)	R _{GS} =10 Ω		190	285	
	t _f			44	66	
Total Gate Charge	Q _G	V _{CC} =300V		112	168	nC
Gate-Source Charge	Q _{GS}	I _D =43A		34	51	
Gate-Drain Charge	Q _{GD}	V _{GS} =10V		40	60	
Avalanche capability	I _{AV}	L=802μH T _{ch} =25°C	43			A
Diode forward on-voltage	V _{SD}	I _F =43A V _{GS} =0V T _{ch} =25°C		1.00	1.50	V
Reverse recovery time	t _{rr}	I _F =43A V _{GS} =0V		0.98		μs
Reverse recovery charge	Q _{rr}	-di/dt=100A/μs T _{ch} =25°C		22.0		μC

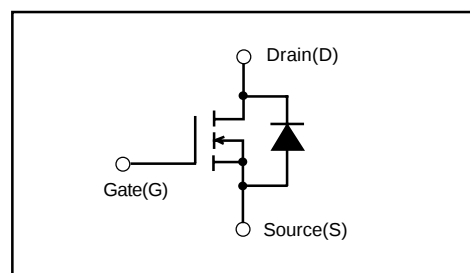
Thermalcharacteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R _{th(ch-c)}	channel to case			0.208	°C/W
	R _{th(ch-a)}	channel to ambient			50.0	°C/W

Outline Drawings [mm]



Equivalent circuit schematic



Characteristics

