

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

● (Tc=25°C unless otherwise specified)

Item	Symbol	Ratings	Unit	Remarks
Drain-source voltage	V _{DS}	600	V	
Continuous drain current	I _D	±13	A	
Pulsed drain current	I _D (puls)	±52	A	
Gate-source voltage	V _{GS}	±30	V	
Repetitive and Non-Repetitive Maximum avalanche current	I _{AS}	13	A	T _{ch} ≤ 150°C
Non-Repetitive Maximum avalanche energy	E _{AS}	216.7	mJ	*1
Maximum Drain-Source dV/dt	dV _{DS} /dt	20	kV/s	V _{DS} ≤ 600V
Peak diode recovery dV/dt	dV/dt	5	kV/μs	*2
Max. power dissipation	P _D	3.13	W	T _a = 25°C
		95		T _c = 25°C
Operating and storage temperature range	T _{ch}	+150	°C	
	T _{stg}	-55 to +150	°C	
Isolation voltage	V _{ISO}	2	kV _{rms}	t = 60sec f = 60Hz

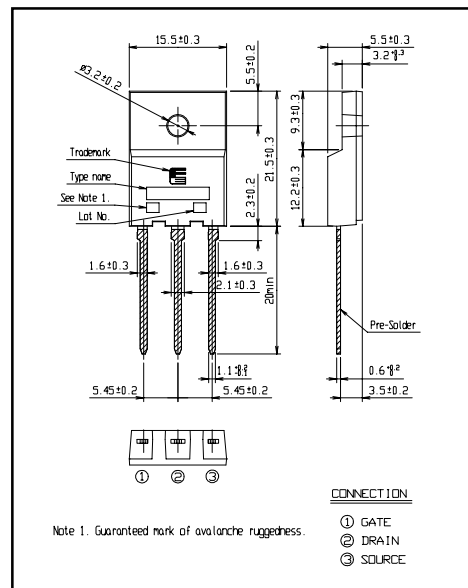
*1 L=2.36mH, V_{CC}=60V, Starting T_{ch}=25°C, See to Avalanche Energy Graph*2 I_F ≤ -I_D, -di/dt=50A/μs, V_{CC} ≤ BV_{DSS}, T_{ch} ≤ 150°C● Electrical characteristics (T_c = 25°C unless otherwise specified)

Item	Symbol	Test Conditions	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 = 6A V _{GS} = 10V		0.50	0.65	Ω
Forward transconductance	g _{fs}	I _D = 6A V _{DS} = 25V	5.5	11		S
Input capacitance	C _{iss}	V _{DS} = 25V		1600	2400	pF
Output capacitance	C _{oss}	V _{GS} = 0V		160	240	
Reverse transfer capacitance	C _{rss}	f = 1MHz		7	10.5	
Turn-on time t _{on}	td(on)	V _{CC} = 300V I _D = 6A		18	27	ns
	t _r	V _{GS} = 10V		16	24	
Turn-off time t _{off}	td(off)	R _{GS} = 10 Ω		35	50	
	t _f			8	15	
Total Gate Charge	Q _G	V _{CC} = 300V		34	51	nC
Gate-Source Charge	Q _{GS}	I _D = 12A		12.5	19	
Gate-Drain Charge	Q _{GD}	V _{GS} = 10V		11.5	17.5	
Avalanche capability	I _{AV}	L = 2.36mH T _{ch} = 25°C	13			A
Diode forward on-voltage	V _{SD}	I _F = 12A V _{GS} = 0V T _{ch} = 25°C		1.00	1.50	V
Reverse recovery time	t _{rr}	I _F = 12A V _{GS} = 0V		0.75		μs
Reverse recovery charge	Q _{rr}	-di/dt = 100A/μs T _{ch} = 25°C		6.5		μC

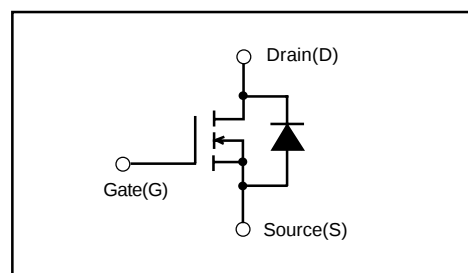
● Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R _{th(ch-c)}	channel to case			1.32	°C/W
	R _{th(ch-a)}	channel to ambient			40.0	°C/W

■ Outline Drawings [mm]



■ Equivalent circuit schematic



Characteristics

