

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	1.67	W	T _a =25°C
		270		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

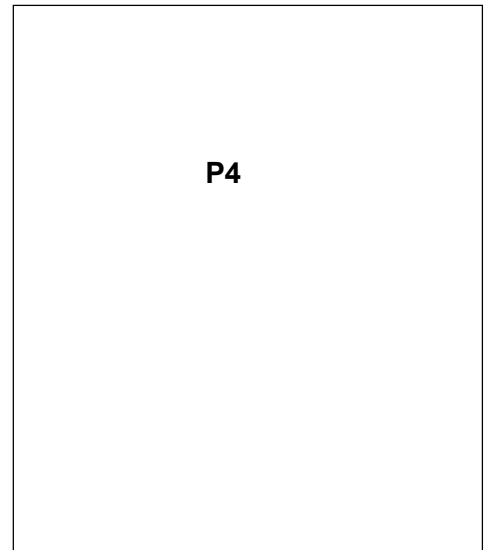
Electrical characteristics (Tc =25°C unless otherwise specified)

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		
Turn-on time t _{on}	td(on)	V _{CC} =300V I _D =8A		29	43.5		ns
	tr	V _{GS} =10V		16	24		
Turn-off time t _{off}	td(off)	R _{GS} =10 Ω		58	87		
	tr			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

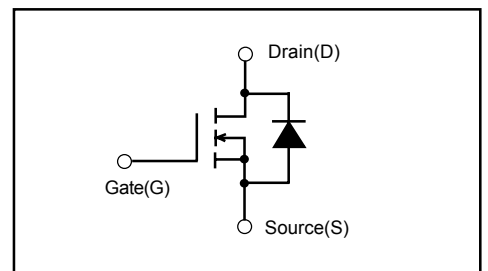
Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R _{th(ch-c)}	channel to case			0.463	°C/W
	R _{th(ch-a)}	channel to ambient			75.0	°C/W

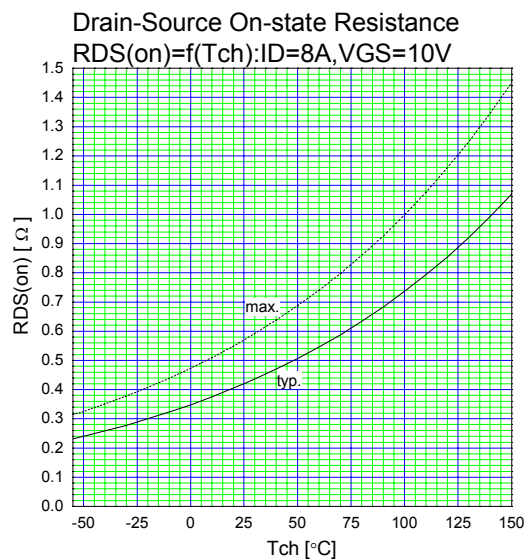
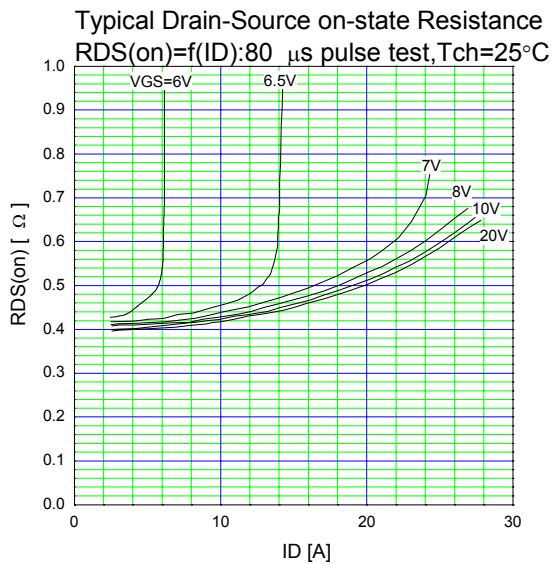
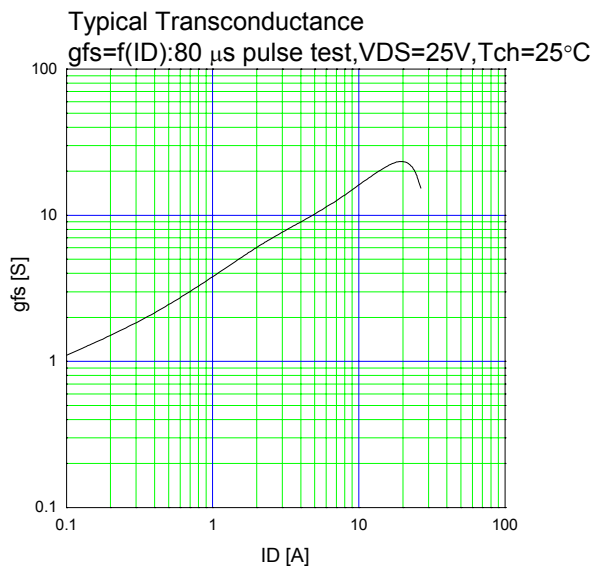
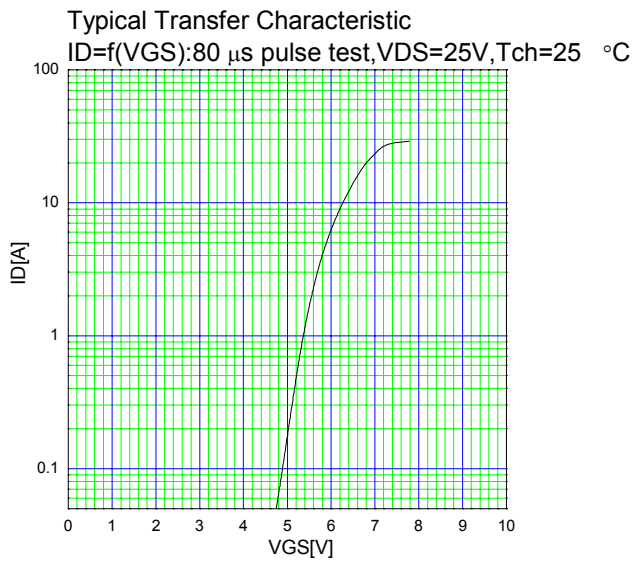
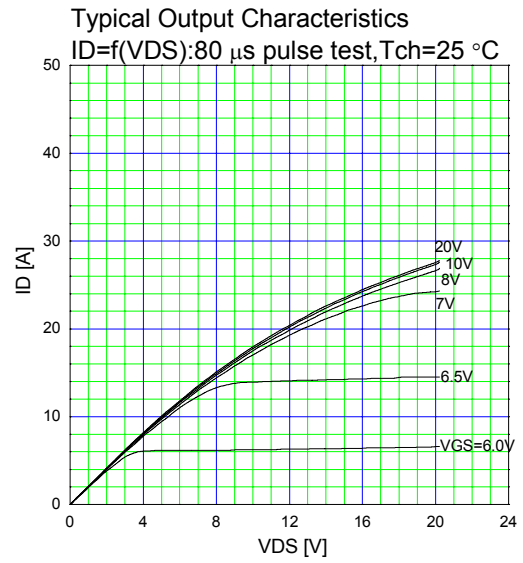
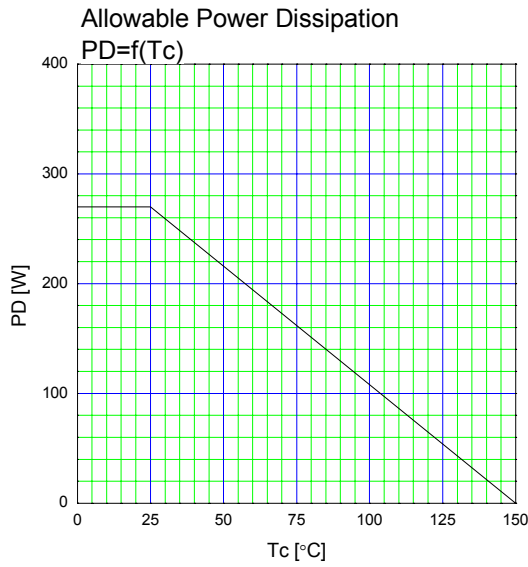
Outline Drawings [mm]

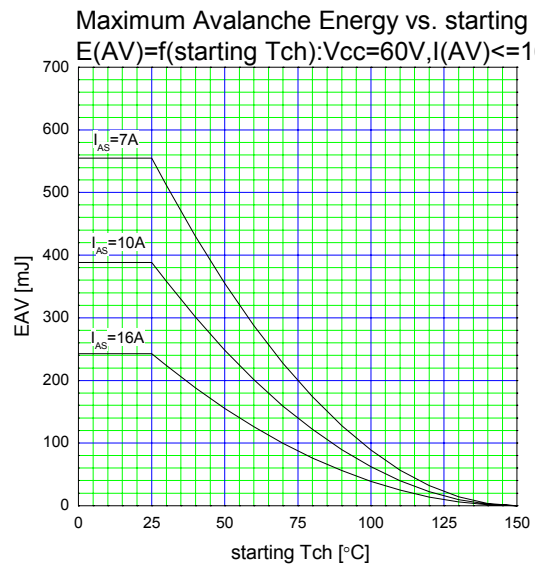
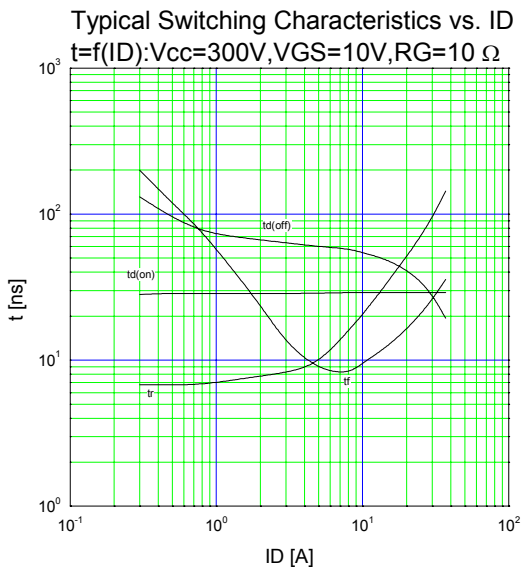
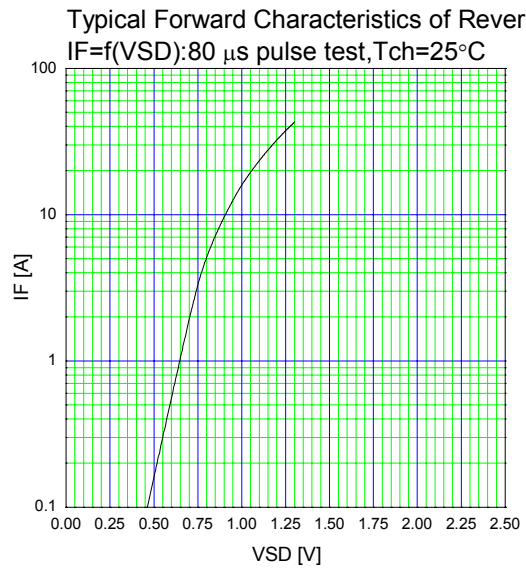
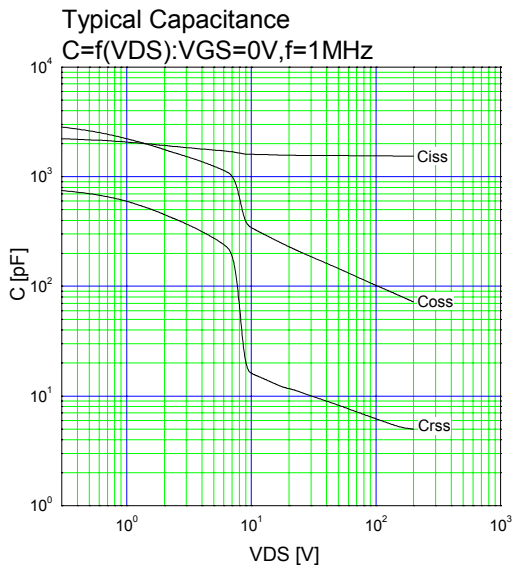
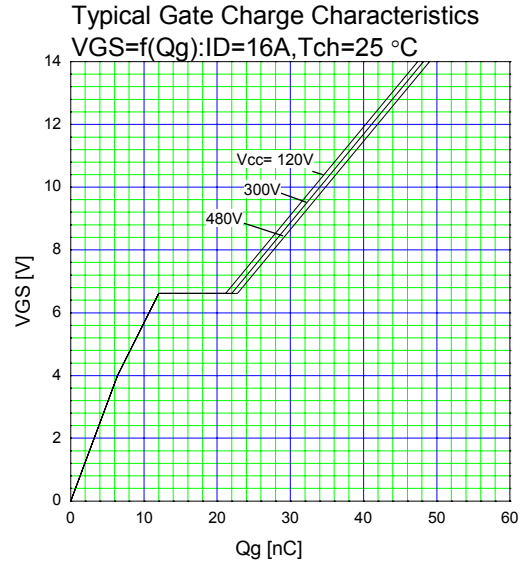
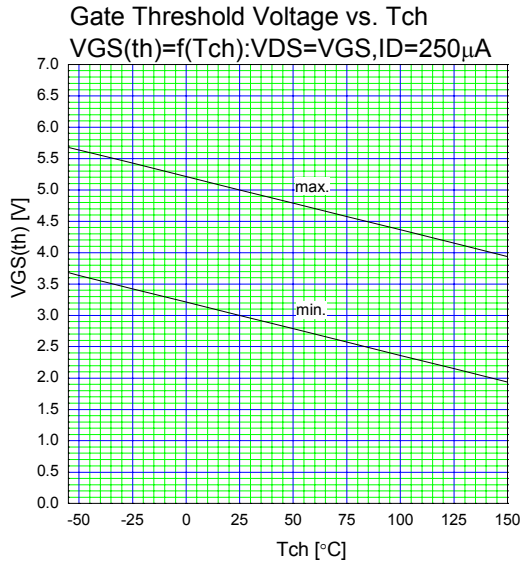


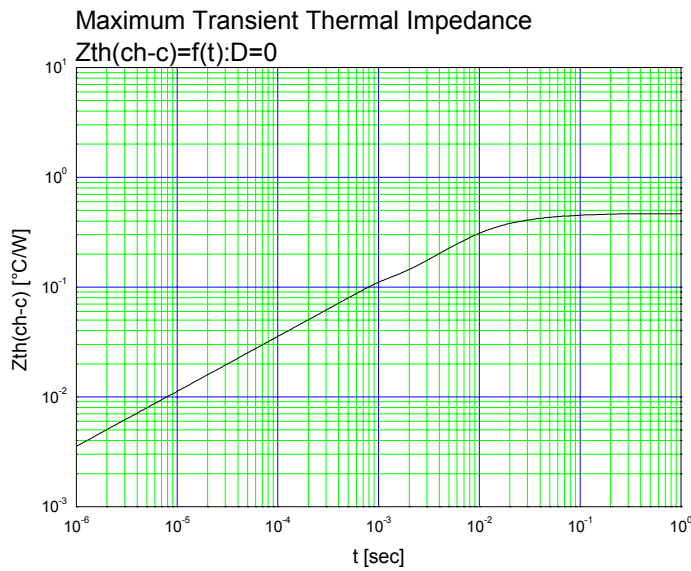
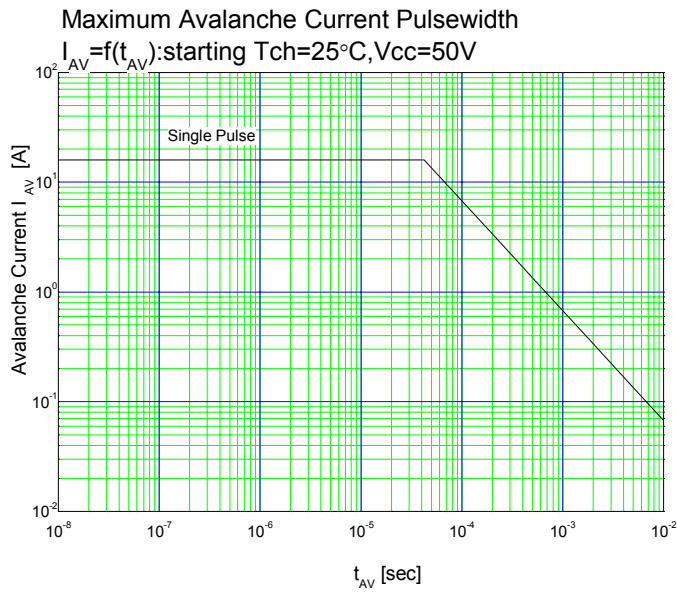
Equivalent circuit schematic



Characteristics

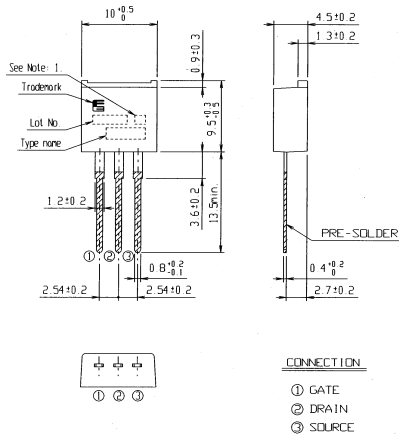






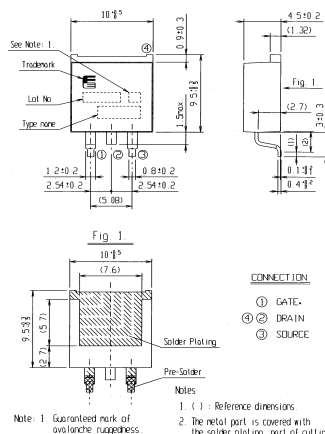
■ Outline Drawings [mm]

T-pack(L)



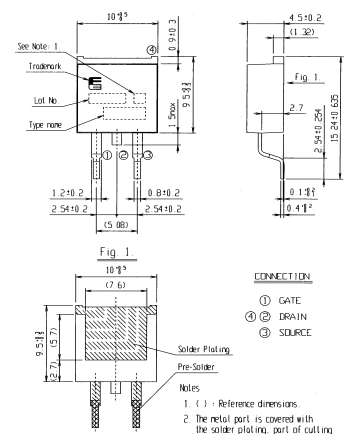
Note: 1. Guaranteed mark of avalanche ruggedness.

T-pack(S)



Note: 1. Guaranteed mark of avalanche ruggedness.

T-pack(SJ) [D2-pack]



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DIMENSIONS ARE IN MILLIMETERS