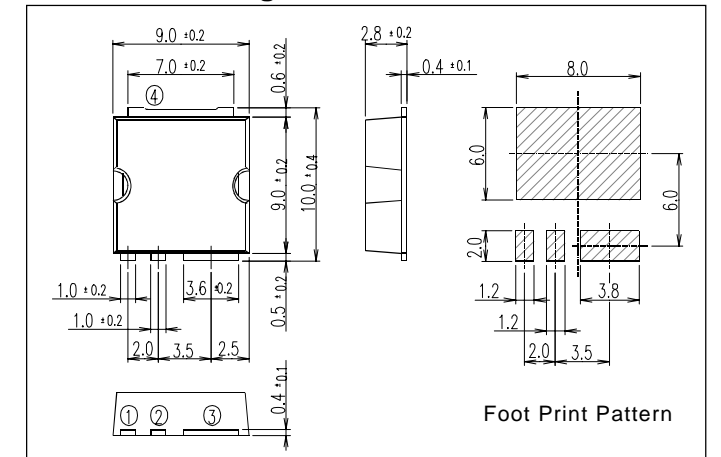


Super FAP-G Series

N-CHANNEL SILICON POWER MOSFET

Outline Drawings



Features

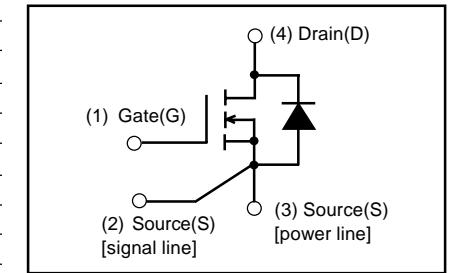
- High speed switching
- Low on-resistance
- No secondary breakdown
- Low driving power
- Avalanche-proof

Applications for Switching

Absolute Maximum Ratings at Tc=25°C ( unless otherwise specified)

Item	Symbol	Ratings	Unit	Remarks
Drain-source voltage	Vds	250	V	
	Vdsx	220	V	VGS=30V
Continuous drain current	Id	±25	A	
		±3.4 *4	A	Ta=25°C
Pulsed drain current	Id(puls)	±100	A	
Gate-source voltage	VGS	±30	V	
Repetitive or non-repetitive	IAR *2	25	A	
Maximum Avalanche Energy	EAS *1	372	mJ	
Maximum Drain-Source dV/dt	dVds/dt	20	kV/μs	Vds ≤ 250V
Peak Diode Recovery dV/dt	dV/dt *3	5	kV/μs	
Max. power dissipation	Pd	2.4 *4	W	Ta=25°C
		135	W	
Operating and storage temperature range	Tch	+150	°C	
	Tstg	-55 to +150	°C	

Equivalent circuit schematic



\*1 L=0.67mH, Vcc=48V \*2 Tch≤150°C \*3 If≤ -Id, -di/dt=50A/μs, Vcc≤BVds, Tch≤150°C \*4 Surface mounted on 1000mm², t=1.6mm FR-4 PCB(Drain pad area:500mm²)

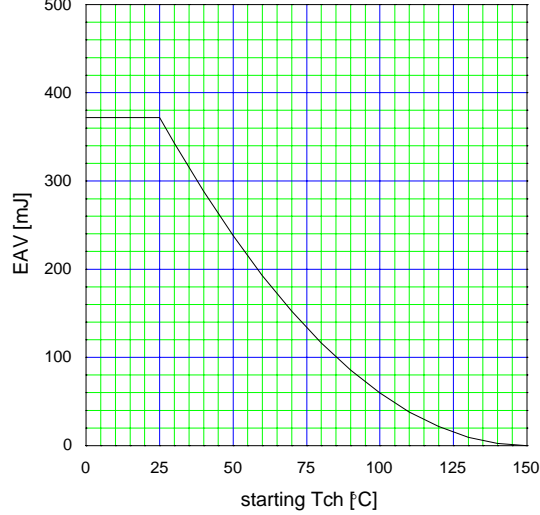
Electrical characteristics at Tc=25°C ( unless otherwise specified)

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	V(BR)DSS	Id=250μA VGS=0V	250			V
Gate threshold voltage	VGS(th)	Id=250μA Vds=Vgs	3.0		5.0	V
					25	μA
Zero gate voltage drain current	IDSS	VDS=250V VGS=0V VDS=200V VGS=0V			250	μA
Gate-source leakage current	IGSS	VGS=±30V Vds=0V		10	100	nA
Drain-source on-state resistance	RDS(on)	Id=12.5A VGS=10V		75	100	mΩ
Forward transconductance	gfs	Id=12.5A Vds=25V	8	16		S
Input capacitance	Ciss	Vds=75V		2000	3000	pF
Output capacitance	Coss	VGS=0V		400	600	pF
Reverse transfer capacitance	Crss	f=1MHz		25	38	pF
Turn-on time ton	td(on)	Vcc=72V Id=12.5A VGS=10V		20	30	ns
	tr			30	45	
	td(off)		RGS=10 Ω		60	
Turn-off time toff	tr			20	30	
Total Gate Charge	QG	Vcc=72V		44	66	nC
Gate-Source Charge	QGS	Id=25A		14	21	
Gate-Drain Charge	QGD	VGS=10V		16	24	
Avalanche capability	I <sub>AV</sub>	L=100 μH Tch=25°C	25			A
Diode forward on-voltage	VSD	If=25A VGS=0V Tch=25°C		1.10	1.65	V
Reverse recovery time	trr	If=25A VGS=0V		0.45		μs
Reverse recovery charge	Qrr	-di/dt=100A/μs Tch=25°C		1.5		μC

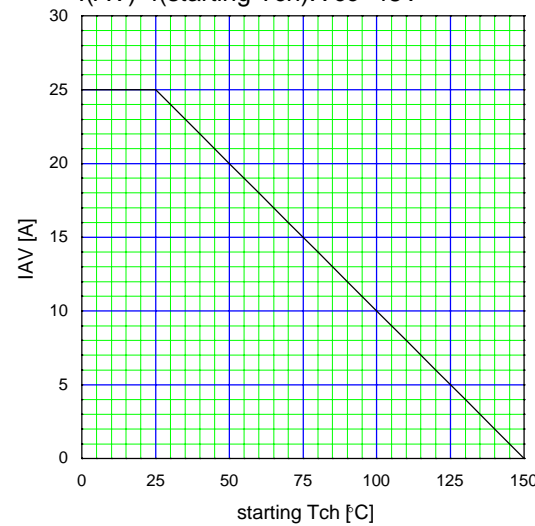
Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	Rth(ch-c)	channel to case			0.93	°C/W
	Rth(ch-a)	channel to ambient			87.0	°C/W
	Rth(ch-a) *4	channel to ambient			52.0	°C/W

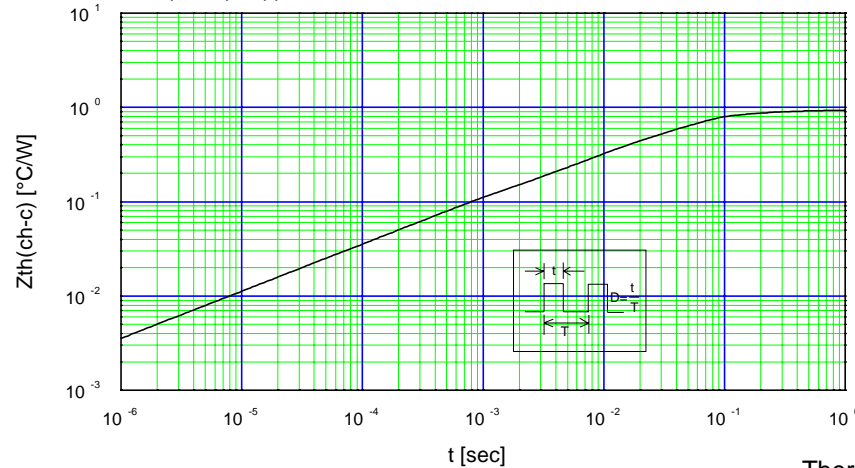
Maximum Avalanche Energy vs. starting Tch  
E(AV)=f(starting Tch):Vcc=48V,I(AV)≤25A



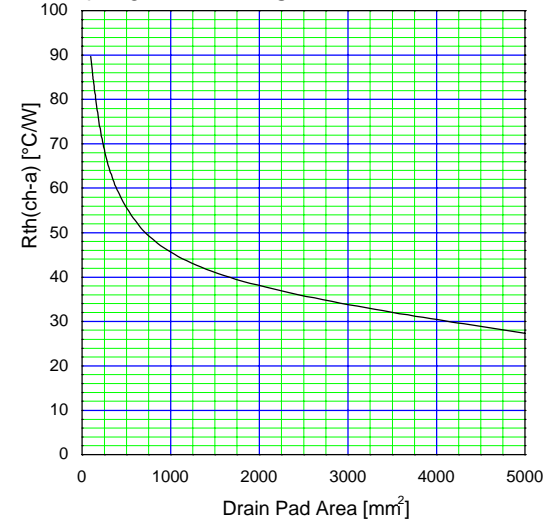
Maximum Avalanche Current vs. starting Tch  
I(AV)=f(starting Tch):Vcc=48V



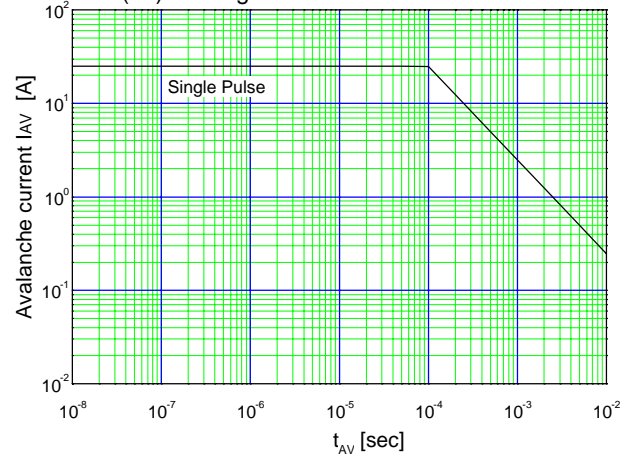
Transient Thermal Impedance  
Zth(ch-c)=f(t):D=0



Thermal Resistance vs. Drain Pad area  
t=1.6mm FR-4 PCB



Maximum Avalanche Current Pulsewidth  
I<sub>AV</sub>=f(t<sub>AV</sub>):starting Tch=25°C, Vcc=48V



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Characteristics

