

N-CHANNEL SILICON POWER MOSFET

FAP-2S Series

■ 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
Drain-source voltage	V _{DS}	500	V
Continuous drain current	I _D	±20	A
Pulsed drain current	I _D (puls)	±80	A
Gate-source voltage	V _{GS}	±30	V
Repetitive or non-repetitive	IAR*2	20	A
Maximum Avalanche Energy	EAS*1	761	mJ
Max. power dissipation	P _D	150	W
Operating and storage temperature range	T _{ch} T _{stg}	+150 -55 to +150	°C

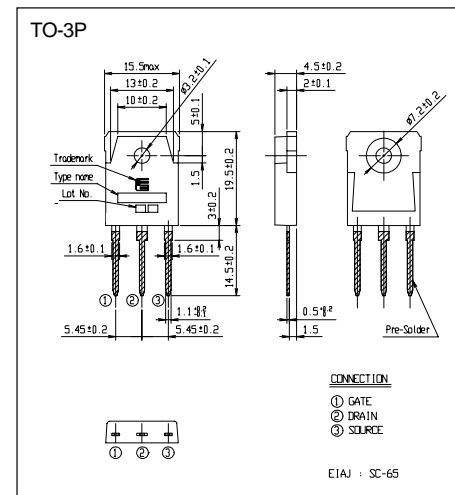
*1 L=3.49mH, V_{CC}=50V *2 T_{ch}≤150°C● Electrical characteristics (T_c =25°C unless otherwise specified)

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	V _{(BR)DSS}	I _D =1mA V _{GS} =0V	500			V
Gate threshold voltage	V _{GS(th)}	I _D =1mA V _{DS} =V _{GS}	2.5	3.0	3.5	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =500V V _{GS} =0V		10	500	μA
		T _{ch} =25°C		0.2	1.0	mA
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 =10A V _{GS} =10V		0.33	0.38	Ω
Forward transconductance	g _{fs}	I _D =10A V _{DS} =25V	7.5	15.0		S
Input capacitance	C _{iss}	V _{DS} =25V V _{GS} =0V		2200	3300	pF
Output capacitance	C _{oss}	f=1MHz		330	500	
Reverse transfer capacitance	C _{rss}			140	210	
Turn-on time t _{on}	td(on)	V _{CC} =300V I _D =20A		20	30	ns
	t _r	V _{GS} =10V		130	200	
Turn-off time t _{off}	td(off)	R _{GS} =10 Ω		160	240	
	t _f			105	160	
Avalanche capability	I _{AV}	L=3.49 mH T _{ch} =25°C	20			A
Diode forward on-voltage	V _{SD}	I _F =2X I _{DR} V _{GS} =0V T _{ch} =25°C		1.1	1.65	V
Reverse recovery time	t _{rr}	I _F =I _{DR} V _{GS} =0V		650		ns
Reverse recovery charge	Q _{rr}	-di/dt=100A/μs T _{ch} =25°C		10.0		μC

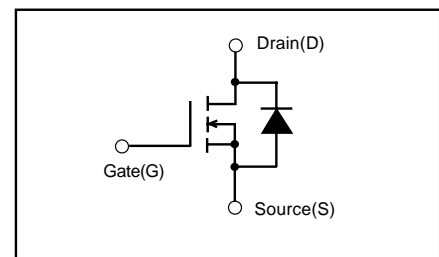
● Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R _{th(ch-c)}	channel to case			0.83	°C/W
	R _{th(ch-a)}	channel to ambient			35.0	°C/W

■ Outline Drawings



■ Equivalent circuit schematic



Characteristics

