

## FAP-III B Series

## N-CHANNEL SILICON POWER MOSFET

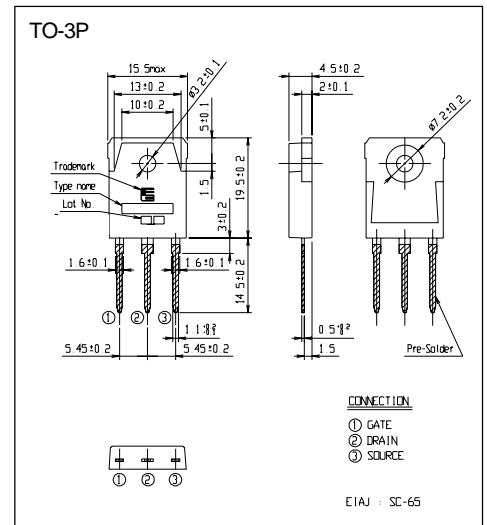
### Features

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

### Applications

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

### Outline Drawings [mm]



### Maximum ratings and characteristic Absolute maximum ratings

(T<sub>c</sub>=25°C unless otherwise specified)

Item	Symbol	Ratings	Unit
Drain-source voltage	V <sub>DS</sub>	60	V
Continuous drain current	I <sub>D</sub>	±80	A
Pulsed drain current	I <sub>Dp</sub>	±320	A
Gate-source voltage	V <sub>GS</sub>	±20	V
Maximum avalanche energy	E <sub>AV</sub> *1	599	mJ
Maximum power dissipation	P <sub>D</sub>	125	W
Operating and storage	T <sub>ch</sub>	+150	°C
Temperature range	T <sub>stg</sub>	-55 to +150	°C

\*1 L=0.125mH, V<sub>CC</sub>=24V

### Electrical characteristics (T<sub>c</sub> =25°C unless otherwise specified)

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	BV <sub>DSS</sub>	I <sub>D</sub> =1mA V <sub>GS</sub> =0V	60			V
Gate threshold voltage	V <sub>GS(th)</sub>	I <sub>D</sub> =1mA V <sub>DS</sub> =V <sub>GS</sub>	1.0	1.5	2.0	V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> =60V V <sub>GS</sub> =0V	T <sub>ch</sub> =25°C	10	500	μA
			T <sub>ch</sub> =125°C		0.2	1.0
Gate-source leakage current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V V <sub>DS</sub> =0V		10	100	nA
Drain-source on-state resistance	R <sub>DS(on)</sub>	I <sub>D</sub> =40A	V <sub>GS</sub> =4V	12	17	mΩ
			V <sub>GS</sub> =10V		7.5	10
Forward transconductance	g <sub>fs</sub>	I <sub>D</sub> =40A V <sub>DS</sub> =25V	25.0	55.0		S
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V		3500	5250	pF
Output capacitance	C <sub>oss</sub>	V <sub>GS</sub> =0V		1250	1870	
Reverse transfer capacitance	C <sub>rss</sub>	f=1MHz		360	540	
Turn-on time t <sub>on</sub>	td(on)	V <sub>CC</sub> =30V I <sub>D</sub> =75A		15	23	ns
	t <sub>r</sub>			75	120	
	td(off)		V <sub>GS</sub> =10V		190	
Turn-off time t <sub>off</sub>	td(off)	R <sub>GS</sub> =10Ω		110	165	
	t <sub>r</sub>					
Avalanche capability	I <sub>AV</sub>	L=100μH T <sub>ch</sub> =25°C	80			A
Diode forward on-voltage	V <sub>SD</sub>	I <sub>F</sub> =160A V <sub>GS</sub> =0V T <sub>ch</sub> =25°C		1.15	1.65	V
Reverse recovery time	t <sub>rr</sub>	I <sub>F</sub> =80A V <sub>GS</sub> =0V		75	120	ns
Reverse recovery charge	Q <sub>rr</sub>	-di/dt=100A/μs T <sub>ch</sub> =25°C		0.17		μC

### Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R <sub>th(ch-c)</sub>	channel to case			1.00	°C/W
	R <sub>th(ch-a)</sub>	channel to ambient			35.0	°C/W

Characteristics

