

N-CHANNEL SILICON POWER MOS-FET

F-I SERIES

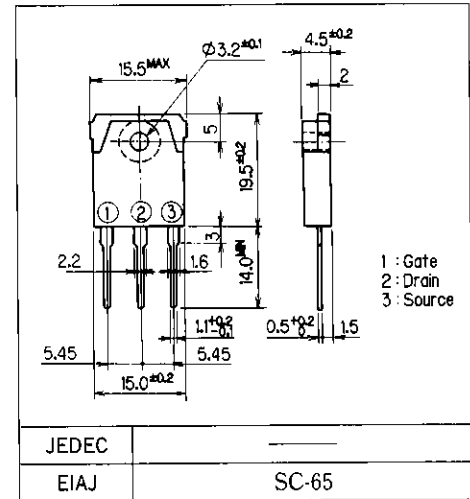
Features

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

Applications

- Switching regulators
- UPS
- DC-DC converters
- General purpose power amplifier

Outline Drawings

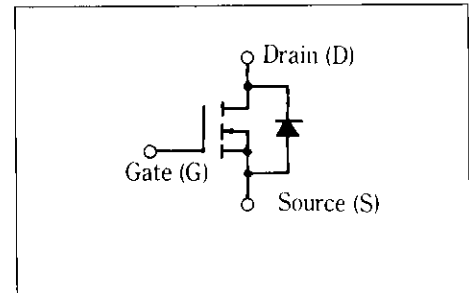


Max. Ratings and Characteristics

Absolute Maximum Ratings (T_c = 25°C)

Items	Symbols	Ratings	Units
Drain-source voltage	V _{DS}	900	V
Continuous drain current	I _D	5	A
Pulsed drain current	I _{D(puls)}	20	A
Continuous reverse drain current	I _{DR}	5	A
Gate-source peak voltage	V _{GSS}	±20	V
Max. power dissipation	P _D	125	W
Operating and storage temperature range	T _{ch}	150	°C
	T _{stg}	-55 ~ +150	°C

Equivalent Circuit Schematic



Electrical Characteristics (T_c = 25°C)

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	V _{(BR)DSS}	I _D = 1mA V _{GS} = 0V	900			V
Gate threshold voltage	V _{GS(th)}	I _D = 10mA V _{DS} = V _{GS}	2.1	3.0	4.0	V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 900V V _{GS} = 0V T _{ch} = 25°C		10	500	μA
Gate-source leakage current	I _{GSS}	V _{GS} = ±20V V _{DS} = 0V		10	100	nA
Drain-source on-state resistance	R _{DS(on)}	I _D = 2.5A V _{GS} = 10V		2.0	2.5	Ω
Forward transconductance	g _{fs}	I _D = 2.5A V _{DS} = 25V	3.0	6.0		S
Input capacitance	C _{iss}	V _{DS} = 25V		1500	2400	pF
Output capacitance	C _{oss}	V _{GS} = 0V		150	240	
Reverse transfer capacitance	C _{rss}	f = 1MHz		50	80	
Switching time (t _{off} = t _{d(off)} + t _r)	t _{on}	V _{CC} = 30V R _G = 50Ω		110	170	ns
	t _{d(off)}	I _D = 2.4A		300	450	
	t _r	V _{GS} = 10V		120	180	
Diode forward on-voltage	V _{SD}	I _F = 2 × I _{DR} V _{GS} = 0V T _{ch} = 25°C		1.0	1.5	V
Reverse recovery time	t _{rr}	I _F = I _{DR} di/dt = 100A/μs T _{ch} = 25°C		900		ns

Thermal Characteristics

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance	R _{th(ch-a)}	channel to air			35	°C/W
	R _{th(ch-c)}	channel to case			1.0	°C/W