

N-CHANNEL SILICON POWER MOS-FET

F-I SERIES

Features

- High speed switching
- Low on-resistance
- Low driving power
- High voltage

Applications

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

Max. Ratings and Characteristics

Absolute Maximum Ratings(Tc=25°C)

Items	Symbols	Ratings	Units
Drain-source voltage	V_{DSS}	250	V
Continuous drain current	I_D	20	A
Pulsed drain current	$I_{D(puls)}$	80	A
Continuous reverse drain current	I_{DR}	20	A
Gate-source peak voltage	V_{GSS}	±20	V
Max. power dissipation	P_D	80	W
Operating and storage temperature range	T_{ch}	150	°C
	T_{stg}	-55 ~ +150	°C

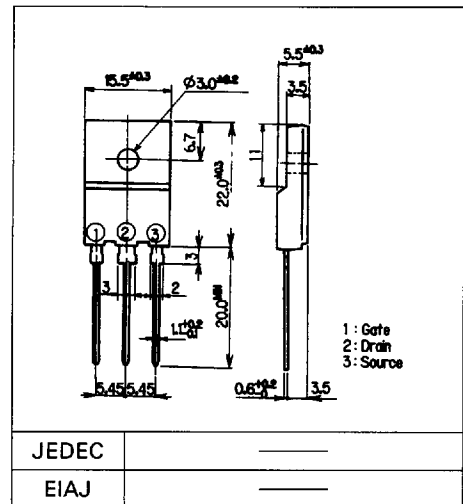
Electrical Characteristics(Tc=25°C)

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	$V_{(BR)DSS}$	$I_D = 1mA$ $V_{GS} = 0V$	250			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}	$V_{DS} = 250V$ $V_{GS} = 0V$	$T_{ch} = 25°C$	10	500	μA
			$T_{ch} = 125°C$	0.2	1.0	mA
Gate-source leakage current	I_{GSS}	$V_{GS} = \pm 20V$ $V_{DS} = 0V$		10	100	nA
Drain-source on-state resistance	$R_{DS(on)}$	$I_D = 10A$ $V_{GS} = 10V$		0.11	0.15	Ω
Forward transconductance	g_{fs}	$I_D = 10A$ $V_{DS} = 25V$	8.0	15.0		S
Input capacitance	C_{iss}	$V_{DS} = 25V$ $V_{GS} = 0V$ $f = 1MHz$		2000	3000	pF
Output capacitance	C_{oss}			350	500	
Reverse transfer capacitance	C_{rss}			110	200	
Turn-on time t_{on} ($t_{on} = t_{d(on)} + t_r$)	$t_{d(on)}$	$V_{CC} = 30V$ $I_D = 3A$ $V_{GS} = 10V$ $R_C = 50\Omega$		30	50	ns
	t_r			70	110	
Turn-off time t_{off} ($t_{off} = t_{d(off)} + t_f$)	$t_{d(off)}$			400	600	
	t_f			120	180	
Diode forward on-voltage	V_{SD}	$I_F = 2 \times I_{DR}$ $V_{GS} = 0V$ $T_{ch} = 25°C$	1.0	1.7	V	
Reverse recovery time	t_{rr}	$I_F = I_{DR}$ $d_i/d_t = 100A/\mu s$ $T_{ch} = 25°C$	250		ns	

Thermal Characteristics

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	$R_{th(ch-a)}$	channel to air			30.0	°C/W
	$R_{th(ch-c)}$	channel to case			1.56	°C/W

Outline Drawings



Equivalent Circuit Schematic

