

## N-CHANNEL SILICON POWER MOS-FET

## F-II SERIES

### Features

- High speed switching
- Low on-resistance
- No secondary breakdown
- Low driving power
- High voltage
- $V_{GSS} = \pm 30V$  Guarantee

### Applications

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

### Max. Ratings and Characteristics

#### Absolute Maximum Ratings( $T_c = 25^\circ C$ )

Items	Symbols	Ratings	Units
Drain-source voltage	$V_{DS}$	250	V
Continuous drain current	$I_D$	10	A
Pulsed drain current	$I_{D(puls)}$	28	A
Continuous reverse drain current	$I_{DR}$	10	A
Gate-source peak voltage	$V_{GSS}$	$\pm 30$	V
Max. power dissipation	$P_D$	80	W
Operating and storage temperature range	$T_{ch}$	150	$^\circ C$
	$T_{str}$	$-55 \sim +150$	$^\circ C$

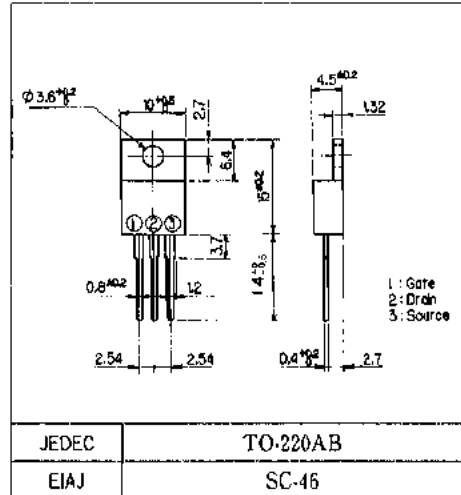
#### Electrical Characteristics( $T_c = 25^\circ C$ )

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units	
Drain-source breakdown voltage	$V_{(BR)DS}$	$I_D = 1mA$ $V_{GS} = 0V$	250			V	
Gate threshold voltage	$V_{GS(th)}$	$I_D = 1mA$ $V_{DS} = V_{GS}$	2.5	3.5	5.0	V	
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 250V$ $V_{GS} = 0V$	$T_{ch} = 25^\circ C$		10	500	$\mu A$
			$T_{ch} = 125^\circ C$		0.2	1.0	mA
Gate-source leakage current	$I_{GSS}$	$V_{GS} = \pm 30V$ $V_{DS} = 0V$		10	100	nA	
Drain-source on-state resistance	$R_{DS(on)}$	$I_D = 5A$ $V_{GS} = 10V$		0.3	0.4	$\Omega$	
Forward transconductance	$g_{fs}$	$I_D = 5A$ $V_{DS} = 25V$	2.0	4.5		S	
Input capacitance	$C_{iss}$	$V_{DS} = 25V$		570	860	pF	
Output capacitance	$C_{oss}$	$V_{GS} = 0V$		140	210		
Reverse transfer capacitance	$C_{rfs}$	$f = 1MHz$		70	110		
Turn-on time $t_{on}$ ( $t_{on} + t_{d(on)} + t_r$ )	$t_{d(on)}$	$V_{CC} = 150V$ $I_D = 10A$ $V_{GS} = 10V$ $R_G = 25\Omega$		20	30	ns	
	$t_r$			40	60		
	$t_{d(off)}$			100	150		
Turn-off time $t_{off}$ ( $t_{d(off)} + t_r$ )	$t_r$			50	75		
Diode forward on-voltage	$V_{SD}$	$I_r = 2 \times I_{DR}$ $V_{GS} = 0V$ $T_{ch} = 25^\circ C$		1.12	1.68	V	
Reverse recovery time	$t_{rr}$	$I_r = I_{DR}$ $di/dt = 100A/\mu s$ $T_{ch} = 25^\circ C$		140		ns	

#### Thermal Characteristics

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance	$R_{th(ch-a)}$	channel to air			75.0	$^\circ C/W$
	$R_{th(ch-c)}$	channel to case			1.56	$^\circ C/W$

### Outline Drawings



### Equivalent Circuit Schematic

