

N-CHANNEL SILICON POWER MOS-FET

FAP-IIA SERIES

Features

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

Applications

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

Max. Ratings and Characteristics

- Absolute Maximum Ratings($T_c = 25^\circ C$)
(unless otherwise specified)

Items	Symbols	Ratings	Units
Drain-source voltage	V_{DS}	900	V
Drain-gate voltage ($R_{GS} = 20K\Omega$)	V_{DGR}	900	V
Continuous drain current	I_D	5	A
Pulsed drain current	$I_{D(puls)}$	20	A
Gate-source voltage	V_{GS}	± 30	V
Max. power dissipation	P_D	50	W
Operating and storage temperature range	T_{ch} T_{stg}	150 -55 ~ +150	$^\circ C$

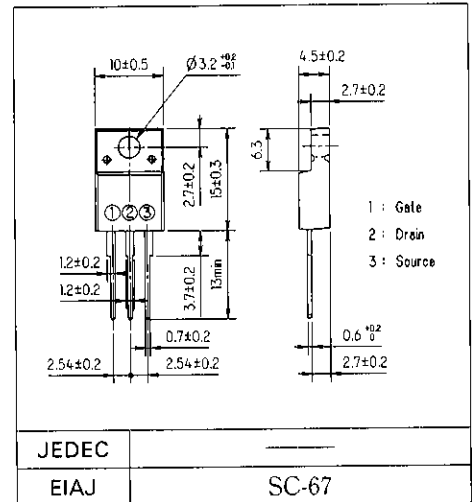
- Electrical Characteristics($T_c = 25^\circ C$) (unless otherwise specified)

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	$V_{GS(th)}$	$I_D = 1mA$ $V_{DS} = V_{GS}$	2.5	3.0	3.5	V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 900V$ $T_{ch} = 25^\circ C$		10	500	μA
		$V_{GS} = 0V$ $T_{ch} = 125^\circ C$		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	$R_{DS(on)}$	$I_D = 2.5A$ $V_{GS} = 10V$		2.5	2.8	Ω
Forward transconductance	g_{fs}	$I_D = 2.5A$ $V_{DS} = 25V$	2	5		S
Input capacitance	C_{iss}	$V_{DS} = 25V$		1300	1950	pF
Output capacitance	C_{oss}	$V_{GS} = 0V$		100	150	
Reverse transfer capacitance	C_{rss}	$f = 1MHz$		35	55	
Turn-on time t_{on} ($t_{on} = t_{d(on)} + t_r$)	$t_{d(on)}$	$V_{CC} = 600V$ $I_D = 5A$ $V_{GS} = 10V$ $R_{GS} = 10\Omega$		20	30	ns
	t_r			15	25	
Turn-off time t_{off} ($t_{off} = t_{d(off)} + t_f$)	$t_{d(off)}$			80	120	
	t_f			25	40	
Avalanche capability	I_{AV}	$L = 100\mu H$ $T_{ch} = 25^\circ C$	5			A
Continuous reverse drain current	I_{DR}	$T_c = 25^\circ C$			5	A
Pulsed reverse drain current	I_{DRM}	$T_c = 25^\circ C$			20	A
Diode forward on-voltage	V_{SD}	$I_F = 2 \times I_{DR}$ $V_{GS} = 0V$ $T_{ch} = 25^\circ C$		1.1	1.65	V
Reverse recovery time	t_{rr}	$I_F = I_{DR}$ $V_{GS} = 0V$		400		ns
Reverse recovery charge	Q_{rr}	$-dI_F/dt = 100A/\mu s$ $T_{ch} = 25^\circ C$		3		μC

- Thermal Characteristics

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	$R_{th(ch-a)}$	channel to air			2.5	$^\circ C/W$
	$R_{th(ch-c)}$	channel to case			62.5	$^\circ C/W$

Outline Drawings



Equivalent Circuit Schematic

