

## N-CHANNEL SILICON POWER MOS-FET

## F-II SERIES

### Features

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

### Applications

- Switching regulators
- LPS
- 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	$V_{DSS}$	600	V
Continuous drain current	$I_D$	9	A
Pulsed drain current	$I_{D(puls)}$	27	A
Continuous reverse drain current	$I_{DR}$	9	A
Gate-source peak voltage	$V_{GSS}$	$\pm 30$	V
Max. power dissipation	$P_D$	50	W
Operating and storage temperature range	$T_{ch}$	150	$^\circ C$
	$T_{stg}$	$-55 \sim +150$	$^\circ C$

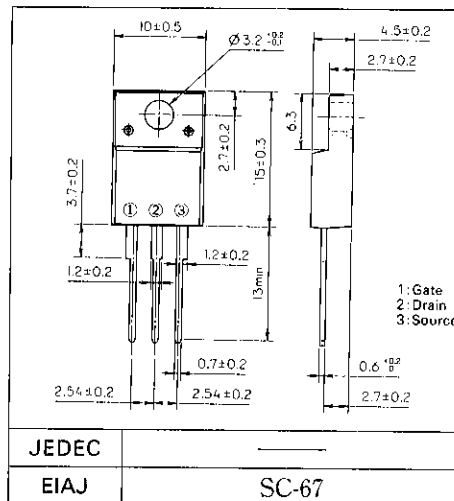
#### Electrical Characteristics( $T_c = 25^\circ C$ )

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	$V_{(BR)DSS}$	$I_D = 1mA$ $V_{GS} = 0V$	600			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	$I_{DSS}$	$V_{DS} = 600V$ $V_{GS} = 0V$ $T_{ch} = 25^\circ C$		10	500	$\mu A$
		$V_{DS} = 600V$ $V_{GS} = 0V$ $T_{ch} = 125^\circ C$		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	$R_{DS(on)}$	$I_D = 5A$ $V_{GS} = 10V$		0.85	1.0	$\Omega$
Forward transconductance	$g_{fs}$	$I_D = 5A$ $V_{DS} = 25V$	4.0	6.0		S
Input capacitance	$C_{iss}$	$V_{DS} = 25V$		1200	1800	pF
Output capacitance	$C_{oss}$	$V_{GS} = 0V$		150	230	
Reverse transfer capacitance	$C_{rss}$	$f = 1MHz$		60	90	
Turn-on time $t_{on}$ ( $t_{on} = t_{d(on)} + t_r$ )	$t_{d(on)}$	$V_{CC} = 300V$ $I_D = 9A$ $V_{GS} = 10V$ $R_G = 25\Omega$		30	45	$\mu s$
	$t_r$			80	120	
Turn-off time $t_{off}$ ( $t_{off} = t_{d(off)} + t_f$ )	$t_{d(off)}$			160	240	
	$t_f$			80	120	
Diode forward on-voltage	$V_{SD}$	$I_F = 2 \times I_{DR}$ $V_{GS} = 0V$ $T_{ch} = 25^\circ C$		1.1	1.5	V
Reverse recovery time	$t_{rr}$	$I_F = I_{DR}$ $dI/dt = 100A/\mu s$ $T_{ch} = 25^\circ C$		500		ns

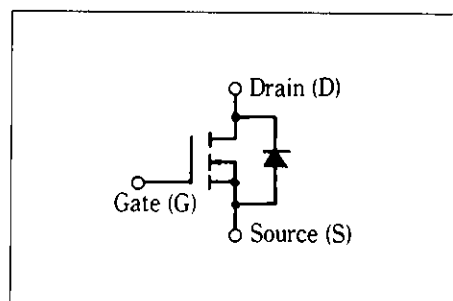
#### Thermal Characteristics

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

### Outline Drawings



### Equivalent Circuit Schematic





# MOSFETs

## FAP-II Series - VGS ± 30V, Reduced Turn-Off Time, High Avalanche Ruggedness 200 - 900 Volts

Device Type	Maximum Ratings			Characteristics (Max.)					Package
	V <sub>DSS</sub> (V)	I <sub>D</sub> (A)	P <sub>D</sub> (W)	R <sub>DS(ON)</sub> Ω	C <sub>ISS</sub> (pf)	C <sub>OSS</sub> (pf)	t <sub>on</sub> (ns)	t <sub>off</sub> (ns)	
2SK2519-01	200	10	40	0.40	750	170	70	80	TO-220
2SK2520-01MR	200	10	30	0.40	750	170	70	80	TO-220F15
2SK2521-01	200	18	50	0.18	1650	330	150	150	TO-220
2SK2522-01MR	200	18	40	0.18	1650	330	150	150	TO-220F15
<b>2SK2469-01MR</b>	300	5	30	1.00	750	180	45	70	TO-220F15
<b>2SK2470-01MR</b>	300	10	40	0.53	110	230	70	85	TO-220F15
<b>2SK2471-01</b>	300	10	80	0.53	1100	230	70	85	TO-3P
<b>2SK2473-01</b>	300	20	125	0.20	2850	600	150	225	TO-3P
2SK1006-01MR	450	5	40	1.60	750	100	95	200	TO-220F15
2SK1007-01	450	5	60	1.60	750	100	95	200	TO-220
2SK1009-01	450	7	80	1.30	1000	150	110	200	TO-220
2SK1386-01	450	7	100	1.30	1000	150	110	200	TO-3P
<b>2SK2523-01</b>	450	9	60	1.00	1700	200	105	145	TO-220
<b>2SK2524-01MR</b>	450	9	40	1.00	1700	200	105	145	TO-220F15
<b>2SK2525-01</b>	450	9	80	1.00	1700	200	105	145	TO-3P
2SK1011-01	450	10	100	0.65	1800	240	165	360	TO-3P
2SK1101-01MR	450	10	50	0.65	1800	240	165	360	TO-220F15
2SK1013-01	450	13	125	0.60	2100	270	215	370	TO-3P
2SK1015-01	450	18	125	0.45	2700	410	260	500	TO-3P
2SK1916-01R	450	18	80	0.45	2700	410	260	500	TO-3PF
2SK1017-01	450	20	150	0.35	3300	480	375	740	TO-3P
2SK1008-01	500	4.5	60	2.20	750	100	95	200	TO-220
2SK1010-01	500	6	80	1.60	1000	150	110	200	TO-220
2SK1820-01L,S	500	6	80	1.60	1000	150	110	200	T-PACK L,S
2SK1012-01	500	10	100	0.90	1800	240	165	360	TO-3P
2SK1503-01	500	10	80	0.90	1800	240	165	360	TO-220
2SK1504-01L,S	500	10	80	0.90	1800	240	165	360	T-PACK L,S
2SK1102-01MR	500	10	50	0.90	1800	240	165	360	TO-220F15
2SK1014-01	500	12	125	0.74	2100	270	215	370	TO-3P
<b>2SK2080-01R</b>	500	15	80	0.55	2700	410	260	500	TO-3PF
2SK1016-01	500	15	125	0.55	2700	410	260	500	TO-3P
2SK1507-01MR	600	9	50	1.00	1800	230	165	360	TO-220F15
<b>2SK2561-01R</b>	600	9	80	1.20	1800	230	165	360	TO-3PF
2SK1023-01	800	4	60	4.50	1200	120	145	255	TO-220
2SK1552-01L,S	800	4	60	4.50	1200	120	145	255	T-PACK L,S
2SK1547-01MR	800	4	40	4.50	1200	120	145	255	TO-220F15
<b>2SK2397-01MR</b>	800	5	50	2.30	1200	180	190	310	TO-220F15
2SK1081-01	800	7	125	2.20	1800	210	225	380	TO-3P
2SK956-01	800	9	150	1.50	2100	300	425	690	TO-3P
2SK1385-01R	800	9	100	1.50	2100	300	425	690	TO-3PF
2SK1548-01MR	900	3.5	40	5.50	1200	120	145	255	TO-220F15
2SK1024-01	900	3.5	60	5.50	1200	120	145	255	TO-220
2SK1510-01L,S	900	3.5	60	5.50	1200	120	145	255	T-PACK L,S
<b>2SK2528-01</b>	900	4	80	3.60	1150	145	85	165	TO-3P
<b>2SK2526-01</b>	900	5	60	3.60	1150	145	85	165	TO-220
<b>2SK2527-01MR</b>	900	5	40	3.60	1150	145	85	165	TO-220F15
2SK1082-01	900	6	125	2.80	1800	210	225	380	TO-3P
2SK962-01	900	8	150	2.00	2100	300	425	690	TO-3P
2SK1217-01R	900	8	100	2.00	2100	300	425	690	TO-3PF

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