2SK1006-01MR

FUJI POWER MOS-FET

N-CHANNEL SILICON POWER MOS-FET

F-II SERIES

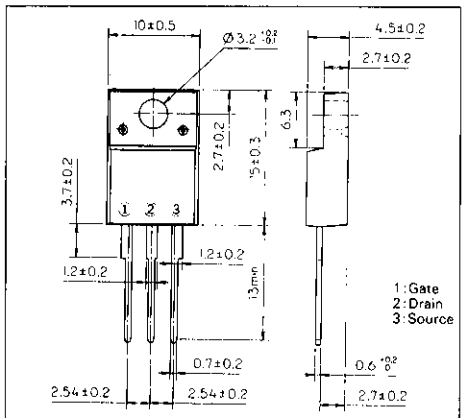
■Features

- High speed switching
- Low on-resistance
- No secondary breakdown
- Low driving power
- High voltage
- $V_{GSS}=\pm30V$ Guarantee
- Avalanche-proof

■Applications

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

■Outline Drawings



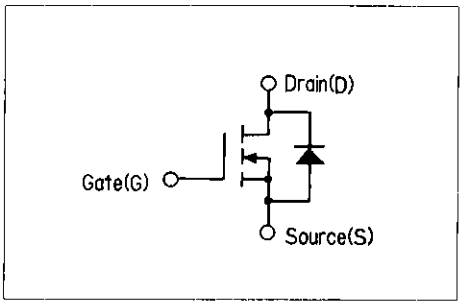
JEDEC	———
EIAJ	SC-67

■Max. Ratings and Characteristics

●Absolute Maximum Ratings(Tc=25°C)

Items	Symbols	Ratings	Units
Drain-source voltage	V_{DSS}	450	V
Continuous drain current	I_D	5	A
Pulsed drain current	$I_{D(puls)}$	14	A
Continuous reverse drain current	I_{DR}	5	A
Gate-source peak voltage	V_{GSS}	±30	V
Max. power dissipation	P_D	40	W
Operating and storage temperature range	T_{ch}	150	°C
	T_{stg}	−55～+150	°C

■Equivalent Circuit Schematic



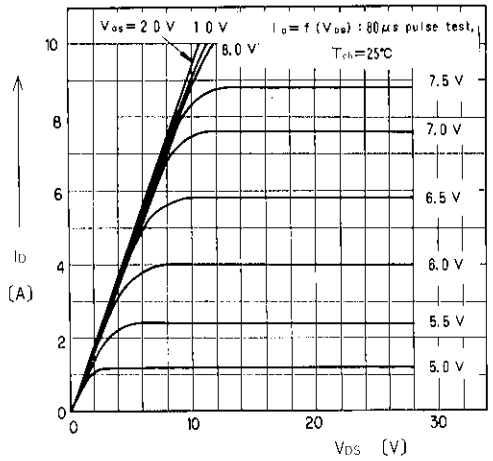
●Electrical Characteristics(Tc=25°C)

Items	Symbols	Test Conditions		Min.	Typ.	Max.	Units
Drain-source breakdown voltage	$V_{(BR)DSS}$	$I_D=1mA$ $V_{GS}=0V$		450			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}	$V_{DS}=450V$ $V_{GS}=0V$	$T_{ch}=25°C$		10	500	μA
			$T_{ch}=125°C$		0.2	1.0	mA
Gate-source leakage current	I_{GSS}	$V_{GS}=\pm30V$ $V_{DS}=0V$			10	100	nA
Drain-source on-state resistance	$R_{DS(on)}$	$I_D=2.5A$ $V_{GS}=10V$			1.1	1.6	Ω
Forward transconductance	g_{fs}	$I_D=2.5A$ $V_{GS}=25V$		1.5	3.0		S
Input capacitance	C_{iss}	$V_{DS}=25V$			500	750	
Output capacitance	C_{oss}	$V_{GS}=0V$			70	100	pF
Reverse transfer capacitance	C_{rss}	f =1MHz			30	45	
Turn-on time t_{on}	$t_{d(on)}$	$V_{CC}=300V$ $I_D=4.5A$			10	15	
$(t_{on}+t_{d(on)}+t_r)$	t_r	$V_{GS}=10V$			50	80	
Turn-off time t_{off}	$t_{d(off)}$	$R_G=25\Omega$			80	120	ns
$(t_{d(off)}+t_f)$	t_f				50	80	
Diode forward on-voltage	V_{SD}	$I_F=2\times I_{DR}$ $V_{GS}=0V$ $T_{ch}=25°C$			1.0	1.5	V
Reverse recovery time	t_{rr}	$I_F=I_{DR}$ $di/dt=100A/\mu s$ $T_{ch}=25°C$			300		ns

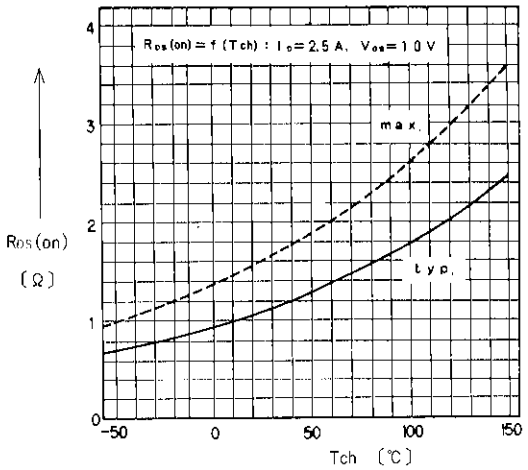
●Thermal Characteristics

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance	$R_{th(ch-a)}$	channel to air			62.5	°C/W
	$R_{th(ch-c)}$	channel to case			3.125	°C/W

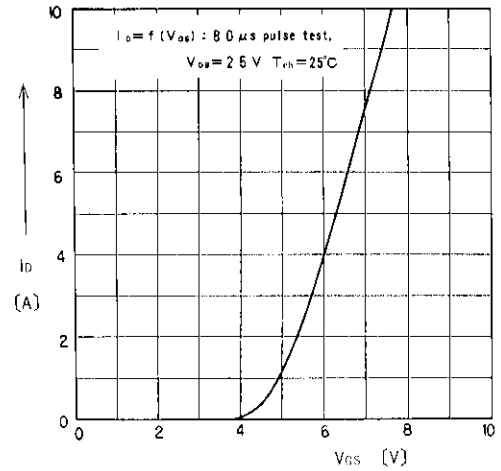
■Characteristics



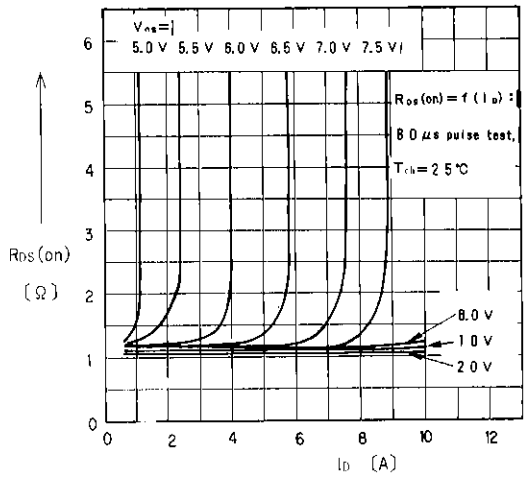
Typical Output Characteristics



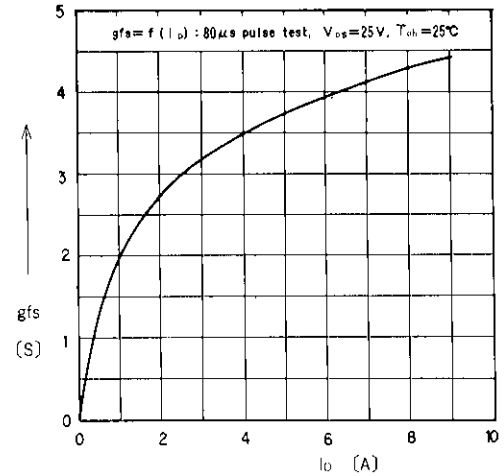
Drain-Source on State Resistance vs. Tch



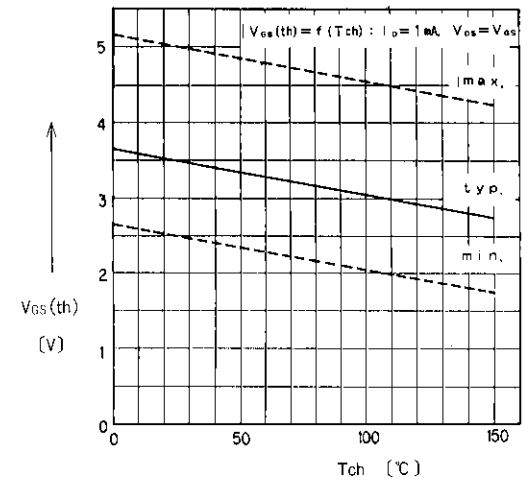
Typical Transfer Characteristic



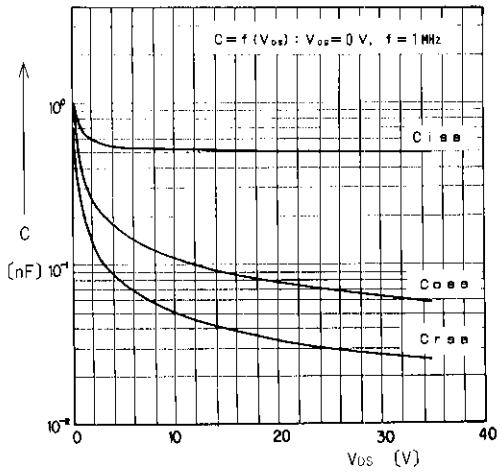
Typical Drain Source on State Resistance vs. I_D



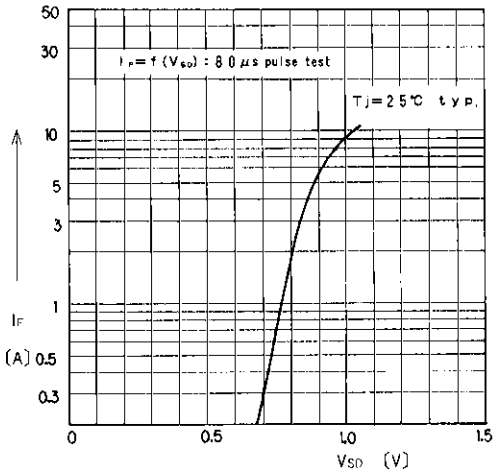
Typical Forward Transconductance vs. I_D



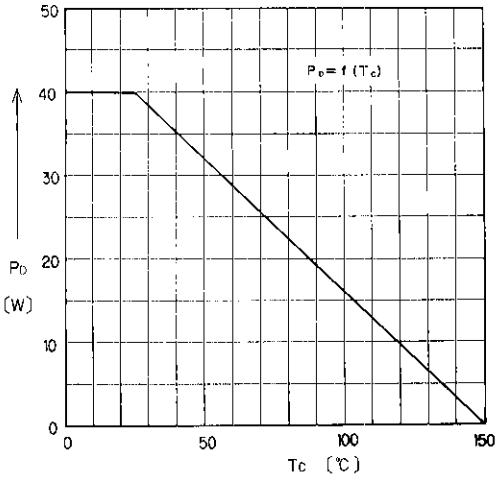
Gate Threshold Voltage vs. Tch



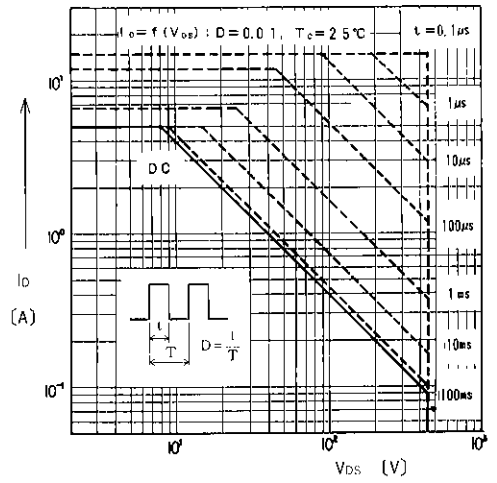
Typical Capacitance vs. V_{DS}



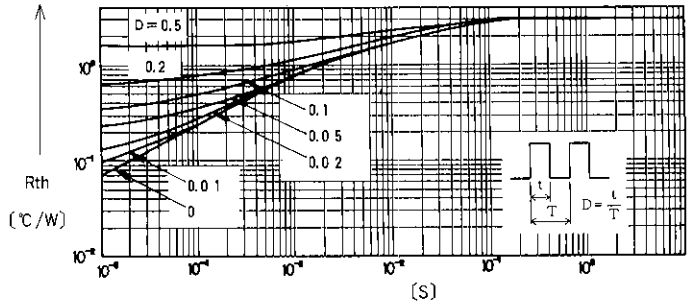
Forward Characteristics of Reverse Diode



Power vs. Temperature Derating



Safe Operating Area



Transient Thermal Impedance