2SK903-M

SIPMOS® FUJI POWER MOS-FET

N-CHANNEL SILICON POWER MOS-FET

F-I SERIES

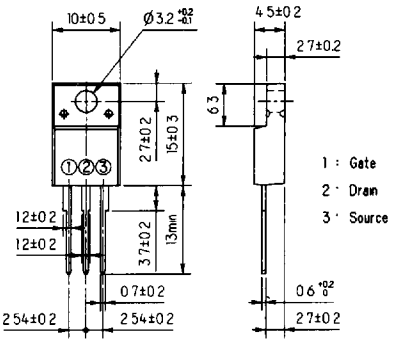
■Features

- High speed switching
- Low on-resistance
- No secondary breakdown
- Low driving power
- High voltage

■Applications

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

■Outline Drawings



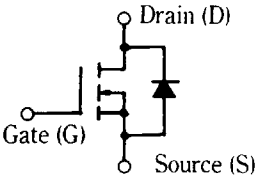
JEDEC	———
EIAJ	SC-67

■Max. Ratings and Characteristics

●Absolute Maximum Ratings(Tc=25°C)

Items	Symbols	Ratings	Units
Drain-source voltage	V_{DSS}	800	V
Continuous drain current	I_D	3	A
Pulsed drain current	$I_{D(puls)}$	12	A
Continuous reverse drain current	I_{DR}	3	A
Gate-source peak voltage	V_{GSS}	±20	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

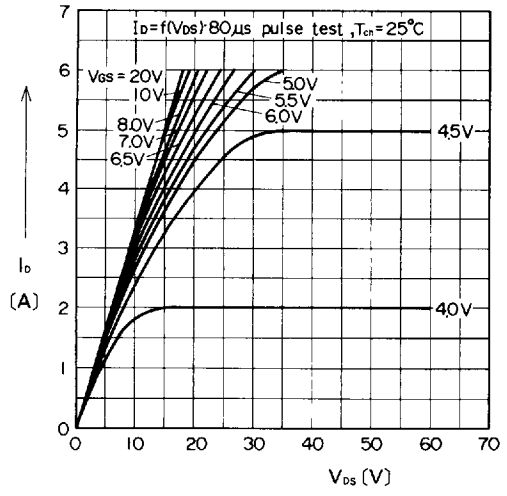


●Electrical Characteristics(Tc=25°C)

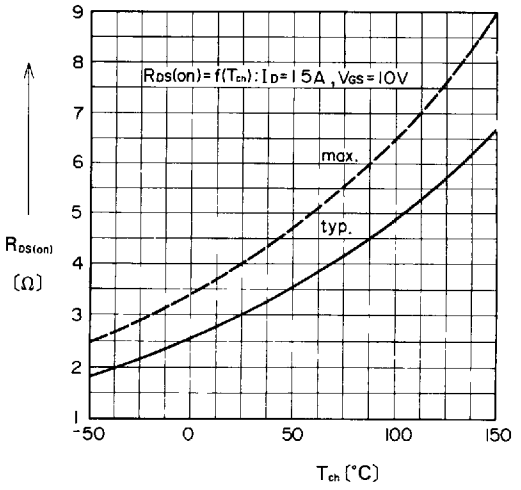
Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	$V_{(BR)DSS}$	I_D=1mA V_{GS}=0V	800			V
Gate threshold voltage	$V_{GS(th)}$	I_D=10mA V_{DS}=V_{GS}	2.1	3.0	4.0	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=800V V_{GS}=0V T_{ch}=25°C		10	500	μA
Gate-source leakage current	I_{GSS}	V_{GS}=±20V V_{DS}=0V		10	100	nA
Drain-source on-state resistance	$R_{DS(on)}$	I_D=1.5A V_{GS}=10V		3.0	4.0	Ω
Forward transconductance	g_{fs}	I_D=1.5A V_{DS}=25V	2.0	4.0		S
Input capacitance	C_{iss}	V_{DS}=25V		900	1400	pF
Output capacitance	C_{oss}	V_{GS}=0V		90	140	
Reverse transfer capacitance	C_{rss}	f =1MHz		35	60	
Switching time (t_{off}=$t_{d(off)}$+t_f)	t_{on}	V_{CC}=30V R_G=50Ω		60	90	ns
	$t_{d(off)}$	I_D=2.1A		150	250	
	t_f	V_{GS}=10V		60	90	
Diode forward on-voltage	V_{SD}	I_F=2×I_{DR} V_{GS}=0V T_{ch}=25°C		1.0	1.35	V
Reverse recovery time	t_{rr}	I_F=I_{DR} di/dt=100A/μs T_{ch}=25°C		400		ns

●Thermal Characteristics

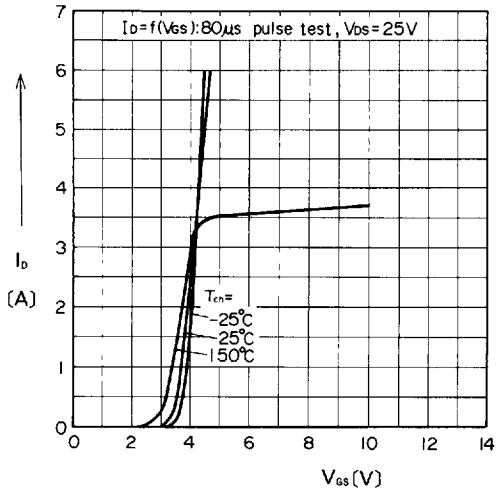
Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance	$R_{th(ch-a)}$	channel to air			62.5	°C/W
	$R_{th(ch-c)}$	channel to case			3.125	°C/W



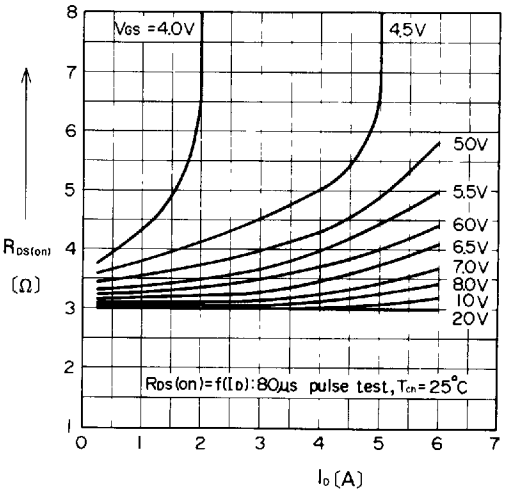
Typical Output Characteristics



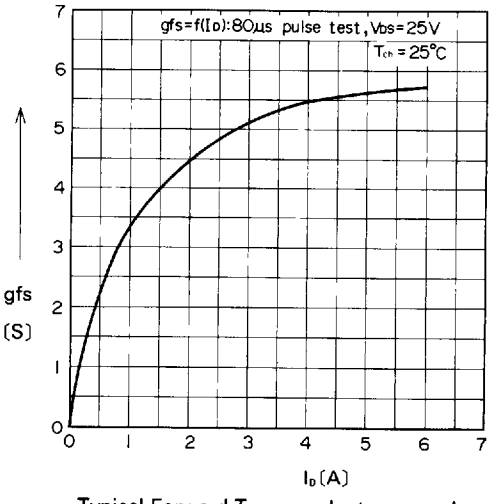
On State Resistance vs. T_{ch}



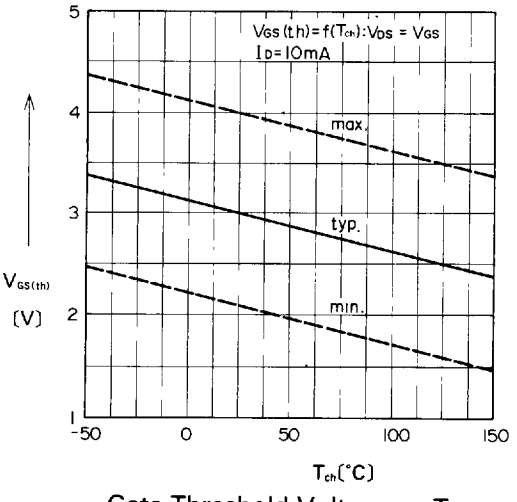
Typical Transfer Characteristic



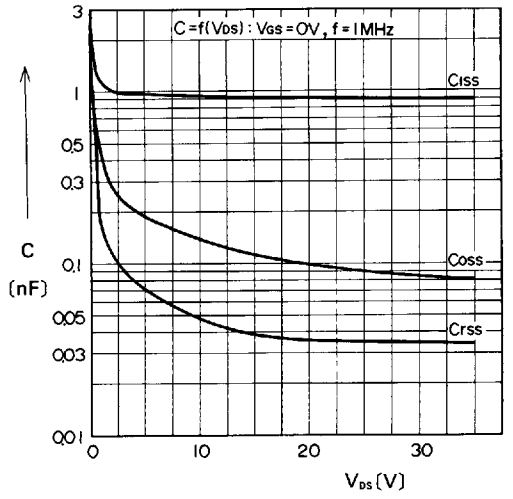
Typical Drain-Source on State Resistance vs. I_D



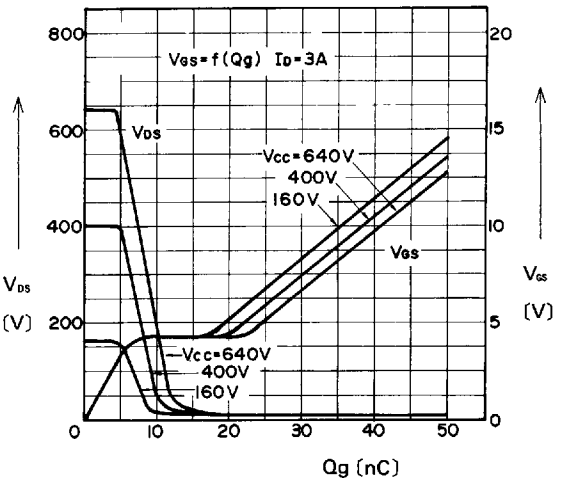
Typical Forward Transconductance vs. I_D



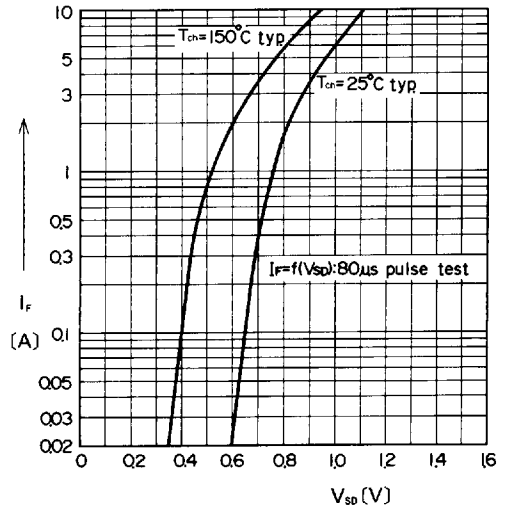
Gate Threshold Voltage vs T_{ch}



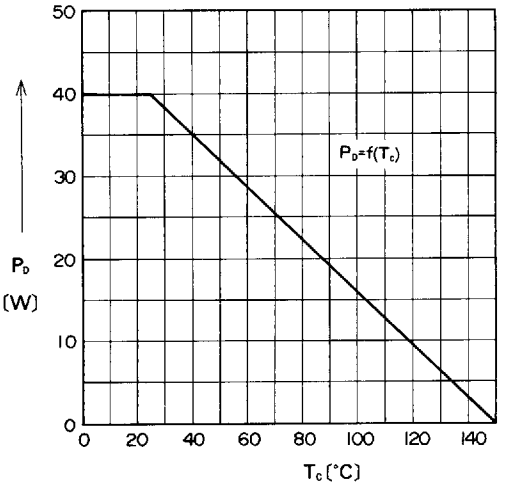
Typical Capacitance vs. V_{DS}



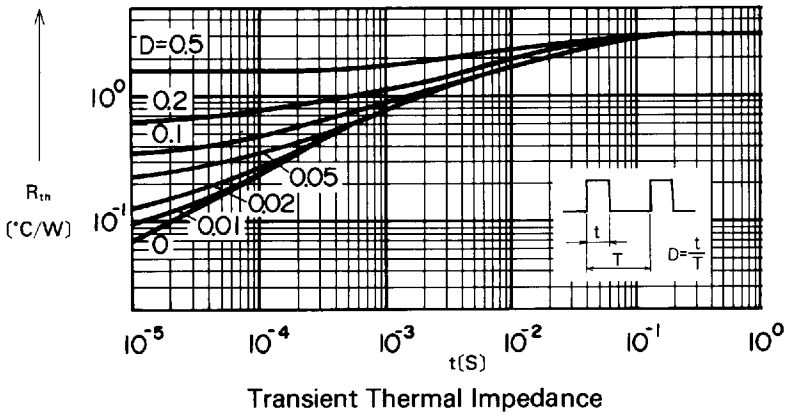
Typical Input Charge



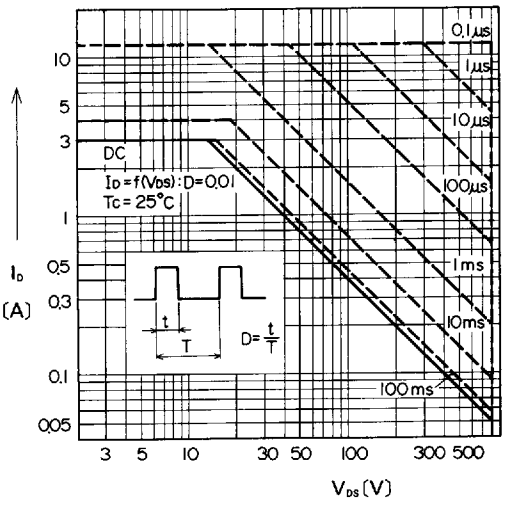
Forward Characteristics of Reverse Diode



Allowable Power Dissipation vs. T_c



Transient Thermal Impedance



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