

2MI50S-050 SIPMOS® FUJI POWER MOS-FET

N-CHANNEL ENHANCEMENT TYPE MOS-FET MOS-FET MODULE

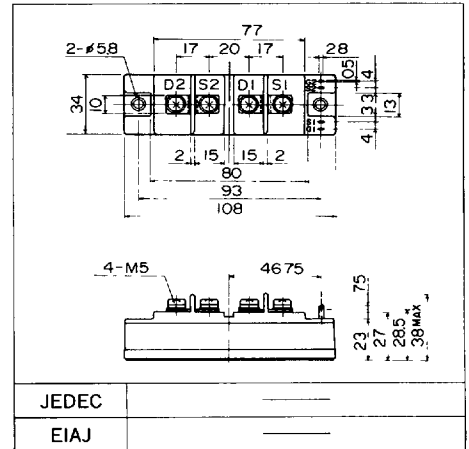
■ Features

- Low on-resistance
- High current
- Insulated to elements and metal base
- Separated two-elements

■ Applications

- High frequency power supplies
- Welders

■ Outline Drawings



■ Max. Ratings and Characteristics

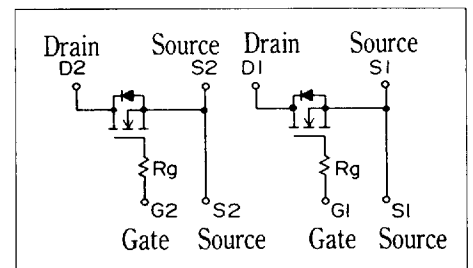
● Absolute Maximum Ratings (Tc=25°C)

Items	Symbols	Ratings	Units
Drain-source voltage	V _{DSS}	500	V
Continuous drain current Duty=66%	I _D	50	A
Pulsed drain current	I _{D(puls)}	150	A
Continuous reverse drain current	I _{DR}	50	A
Gate-source peak voltage	V _{GSS}	±20	V
Max. power dissipation	P _D	400	W
Operating and storage temperature range	T _{ch}	150	°C
	T _{stg}	-40 ~ +150	°C
Isolation test voltage AC 1min	V _{ISO}	2500	V

● Electrical Characteristics (Tc=25°C)

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V I _D =1mA	500			V
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =10mA	2.1	3.0	4.0	V
Zero gate voltage drain current	I _{DSS}	V _{GS} =0V V _{DS} =500V T _{ch} =25°C			1.0	mA
Gate-source leakage current	I _{GSS}	V _{DS} =0V V _{GS} =±20V			100	nA
Drain-source on-state resistance	R _{DS(on)}	V _{GS} =15V I _D =25A			0.11	Ω
Forward transconductance	g _{fs}	V _{DS} =25V I _D =25A		45		S
Input capacitance	C _{iss}	V _{GS} =0V		7.8	13	nF
Output capacitance	C _{oss}	V _{DS} =25V		0.9	1.5	
Reverse transfer capacitance	C _{rss}	f=1MHz		0.4	0.6	
Switching time (t _{off} =t _{d(off)} +t _r)	t _{on}	V _{CC} =100V R _G =5Ω		530	750	ns
	t _{d(off)}	I _D =25A P _w =20μs		700	1000	
	t _r	V _{GS} =15V		80	110	
Diode forward on-voltage	V _{SD}	I _F =50A V _{GS} =0V		0.9	1.2	V
Reverse recovery time	t _{rr}	I _F =50A -d _i /d _t =100A/μs V _{GS} =0V		600		ns

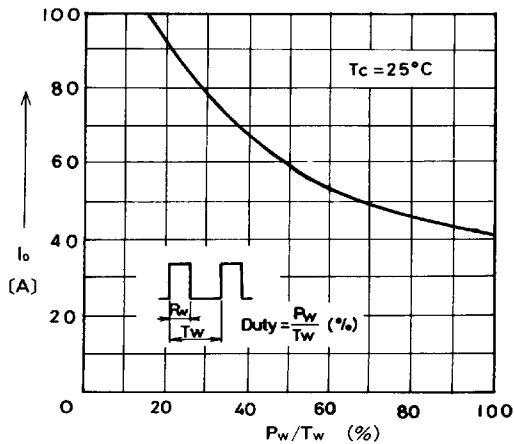
■ Equivalent Circuit Schematic :



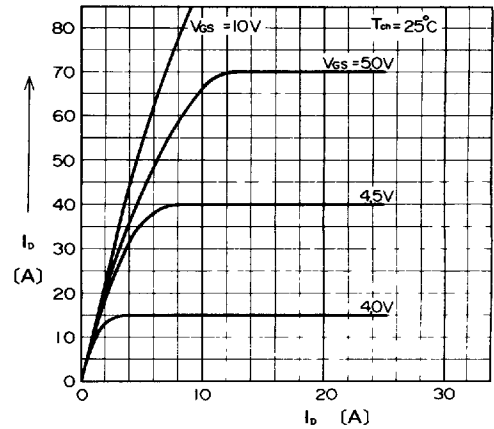
● Thermal Characteristics

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance	R _{th(c-f)}	case to fim			0.06	°C/W
	R _{th(ch-c)}	channel to case			0.312	°C/W

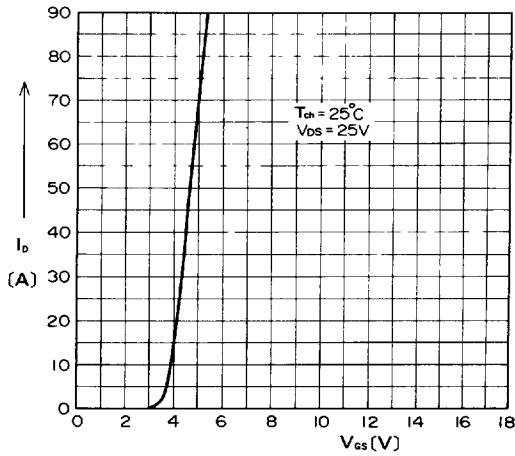
Characteristics



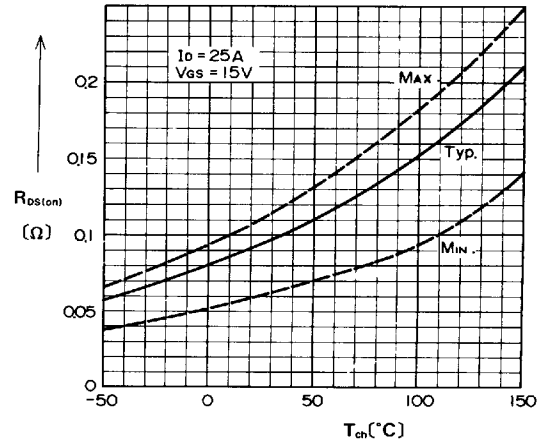
Current Duty Characteristics



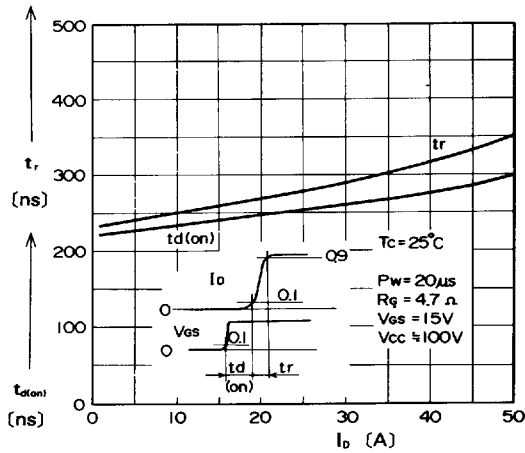
Typical Output Characteristics



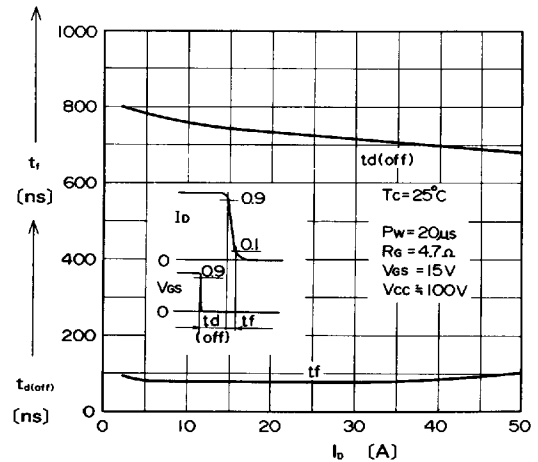
Typical Transfer Characteristics



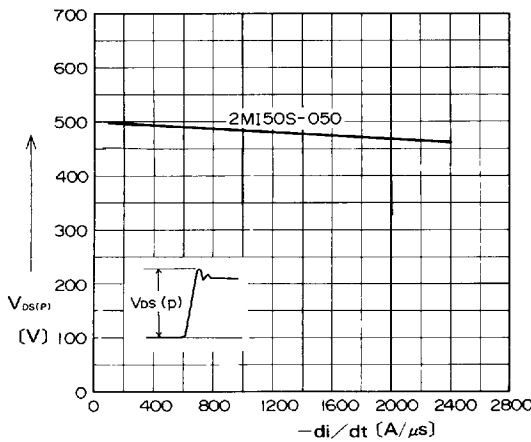
Typical Drain-Source on State Resistance vs. T_{ch}



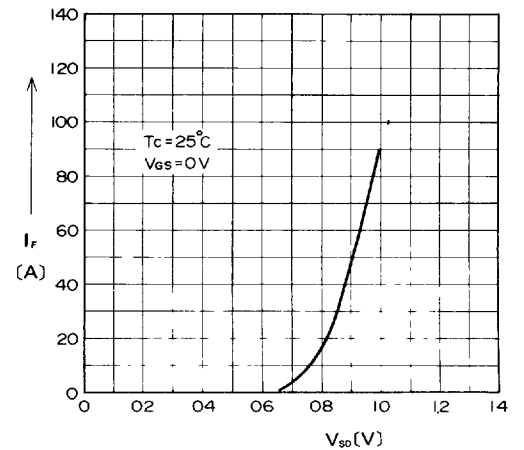
Turn-ON Characteristics



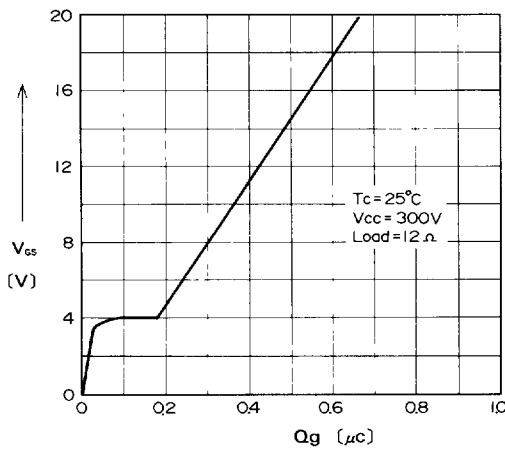
Turn-OFF Characteristics



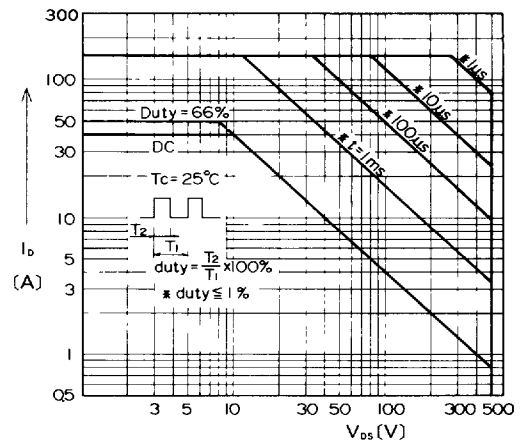
Max. Allowable di/dt at toff



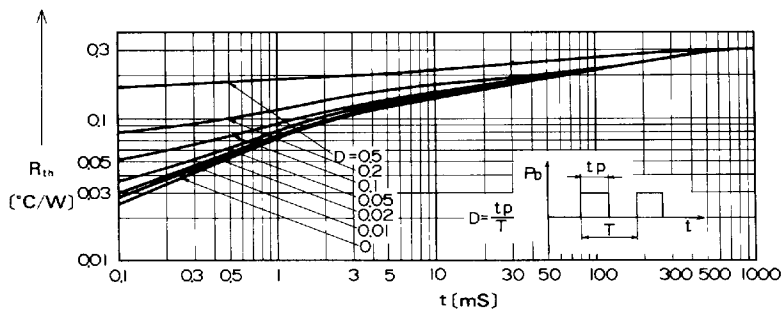
Forward Voltage of FWD



Typical Input Charge



Safe Operating Area



Transient Thermal Impedance

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