2SK2253-01MR

FUJI POWER MOSFET

N-CHANNEL SILICON POWER MOSFET

FAP-IIA SERIES

■ Features

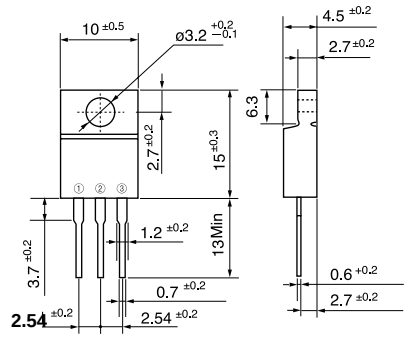
- High speed switching
- Low on-resistance
- No secondary breakdown
- Low driving power
- High voltage
- VGS=±30V Guarantee
- Avalanche-proof

■ Applications

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

■ Outline Drawings

TO-220F15



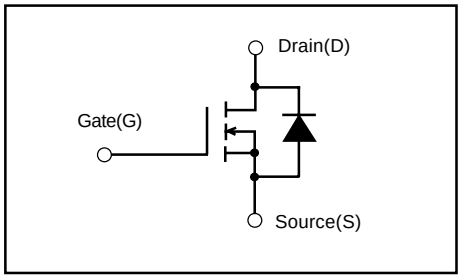
JEDEC	——
EIAJ	SC-67

■ Maximum ratings and characteristics

● **Absolute maximum ratings (Tc=25°C unless otherwise specified)**

Item	Symbol	Rating	Unit
Drain-source voltage	V_{DS}	250	V
Continuous drain current	I_D	8	A
Pulsed drain current	$I_{D(puls)}$	32	A
Continuous reverse drain current	I_{DR}	8	A
Gate-source peak voltage	V_{GS}	±30	V
Max. power dissipation	P_D	40	W
Operating and storage temperature range	T_{ch}	+150	℃
	T_{stg}	-55 to +150	℃

■ Equivalent circuit schematic



● **Electrical characteristics (T_c =25°C unless otherwise specified)**

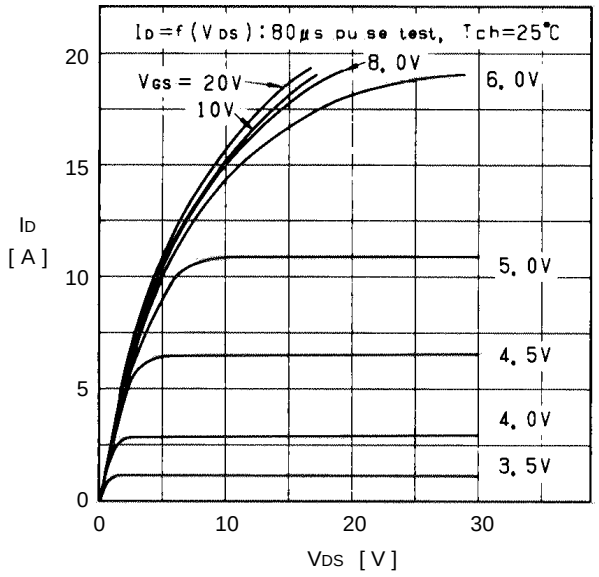
Item	Symbol	Test Conditions		Min.	Typ.	Max.	Units
Drain-source breakdown voltage	$V_{(BR)DSS}$	I_D=1mA V_{GS}=0V		250			V
Gate threshold voltage	$V_{GS(th)}$	I_D=1mA V_{DS}=V_{GS}		2.5	3.0	3.5	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=250V V_{GS}=0V	T_{ch}=25°C		10	500	μA
			T_{ch}=125°C		0.2	1.0	mA
Gate-source leakage current	I_{GSS}	V_{GS}=±30V V_{DS}=0V			10	100	nA
Drain-source on-state resistance	$R_{DS(on)}$	I_D=4A V_{GS}=10V			0.35	0.50	Ω
Forward transconductance	g_{fs}	I_D=4A V_{DS}=25V		2.5	5.0		S
Input capacitance	C_{iss}	V_{DS}=25V			750	1130	pF
Output capacitance	C_{oss}	V_{GS}=0V			130	200	
Reverse transfer capacitance	C_{rss}	f=1MHz			30	45	
Turn-on time t_{on}	$t_{d(on)}$	V_{CC}=150V R_G=10 Ω			30	45	ns
(t_{on}=$t_{d(on)}$+t_r)	t_r	I_D=8A			30	45	
Turn-off time t_{off}	$t_{d(off)}$	V_{GS}=10V			40	60	
(t_{off}=$t_{d(off)}$+t_f)	t_f				10	15	
Avalanche capability	I_{AV}	L=100μH T_{ch}=25°C		8			A
Diode forward on-voltage	V_{SD}	I_F=2xI_{DR} V_{GS}=0V T_{ch}=25°C			1.0	1.5	V
Reverse recovery time	t_{rr}	I_F=I_{DR} V_{GS}=0V			120		ns
Reverse recovery charge	Q_{rr}	-di/dt=100A/μs T_{ch}=25°C			0.6		μC

● **Thermal characteristics**

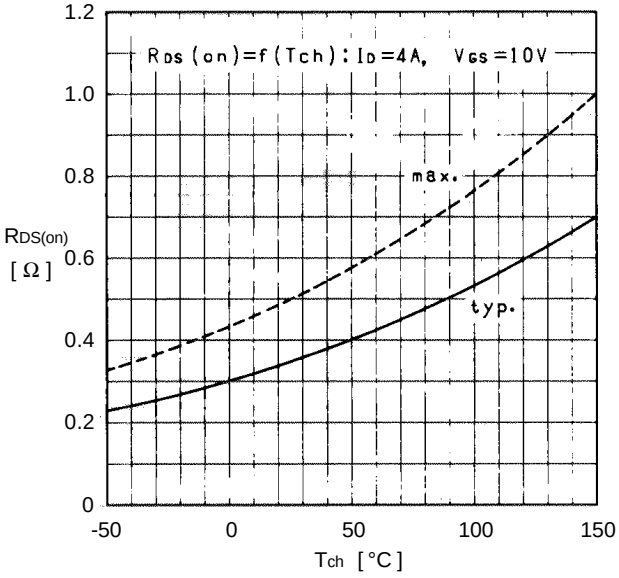
Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	$R_{th(ch-a)}$	channel to ambient			62.5	°C/W
	$R_{th(ch-c)}$	channel to case			3.125	°C/W

Characteristics

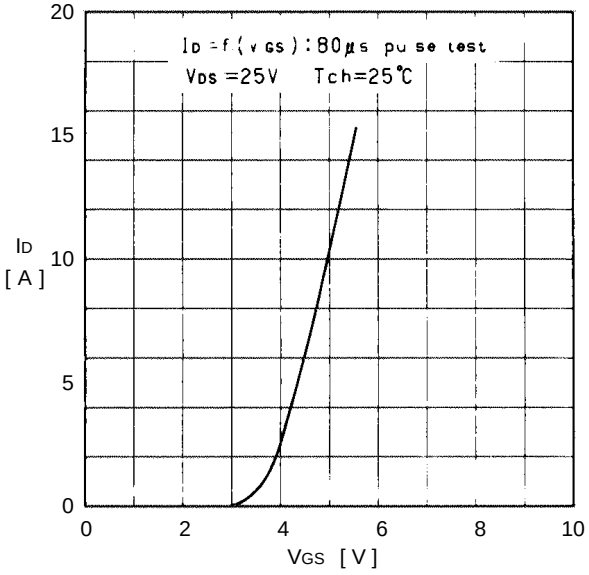
Typical output characteristics



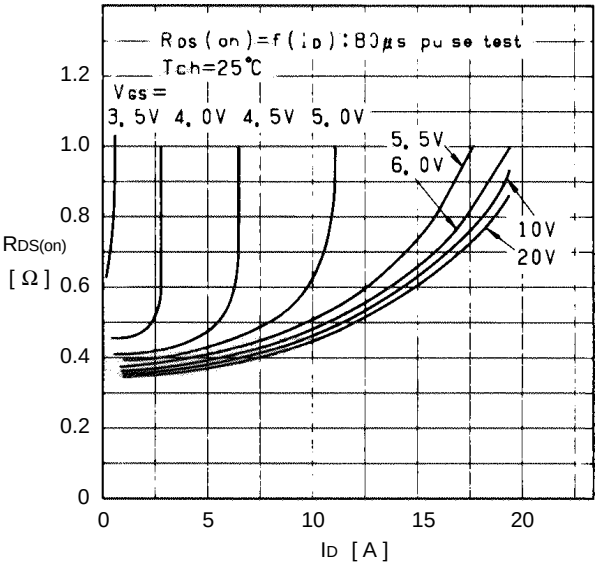
On state resistance vs. Tch



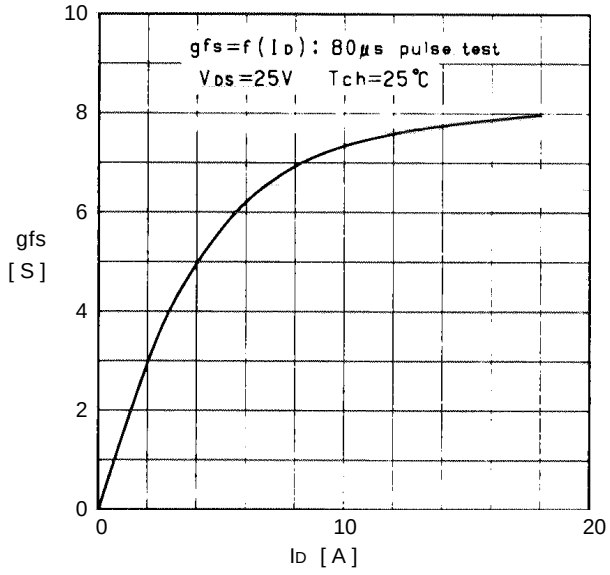
Typical transfer characteristics



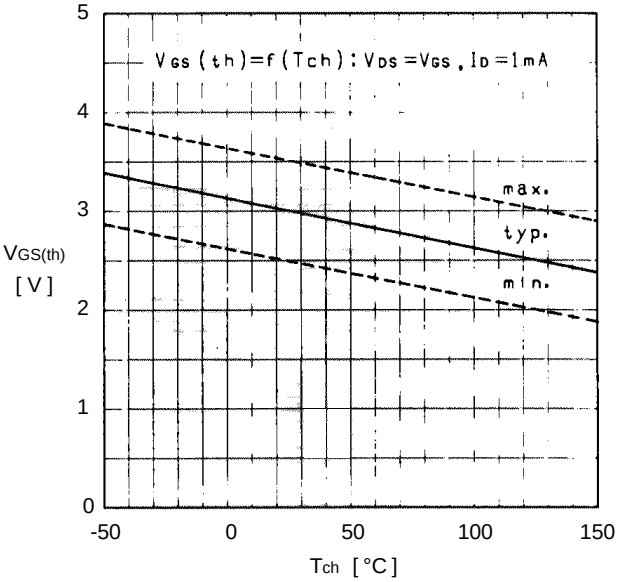
Typical Drain-Source on state resistance vs. ID



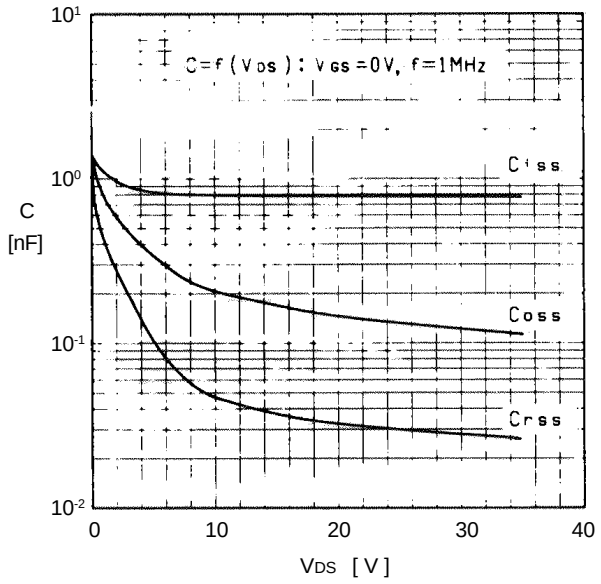
Typical forward transconductance vs. ID



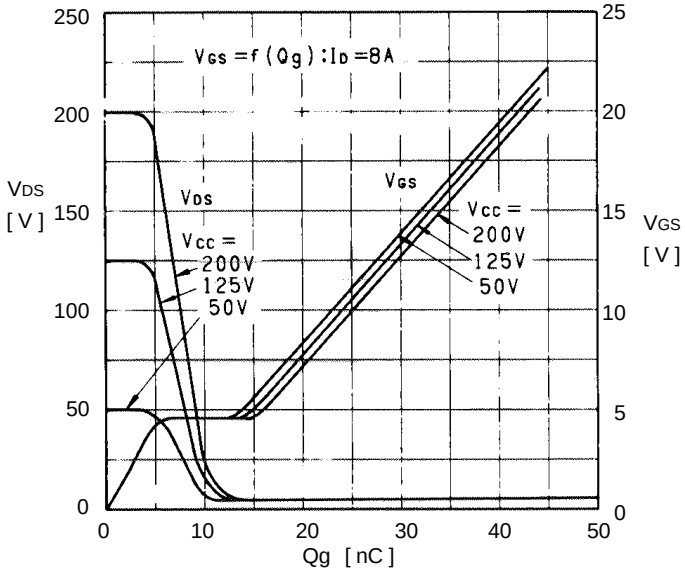
Gate threshold voltage vs. Tch



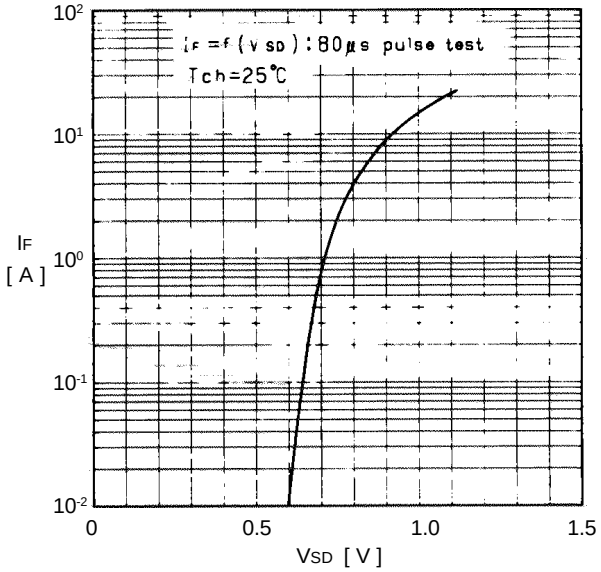
Typical capacitance vs. V_{DS}



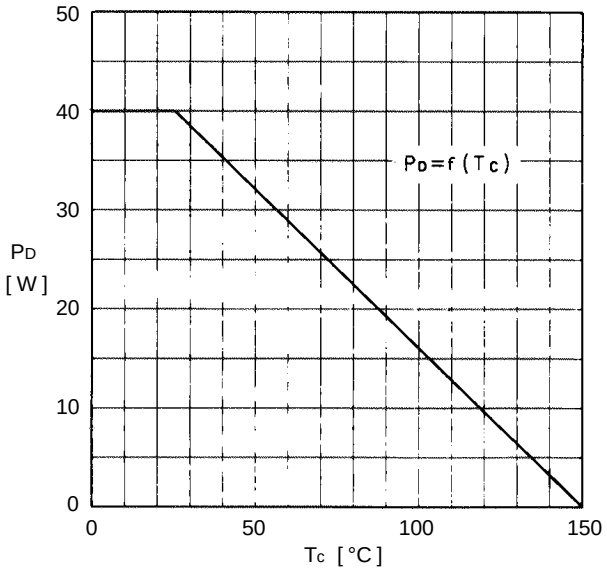
Typical input charge



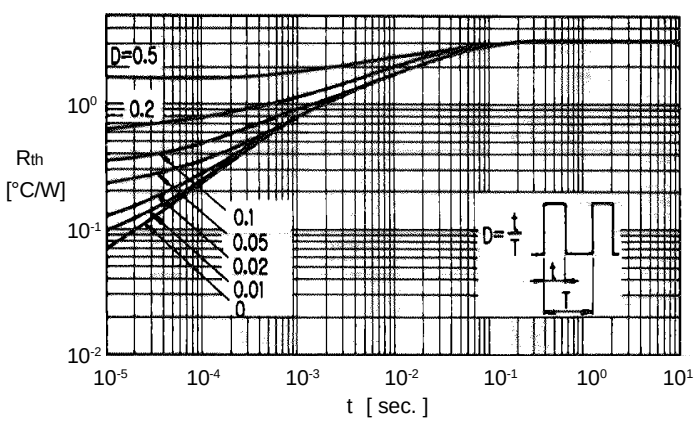
Forward characteristics of reverse diode



Allowable power dissipation vs. T_c



Transient thermal impedance



Safe operating area