2SK899

FUJI POWER MOSFET

N-CHANNEL SILICON POWER MOSFET

F-I SERIES

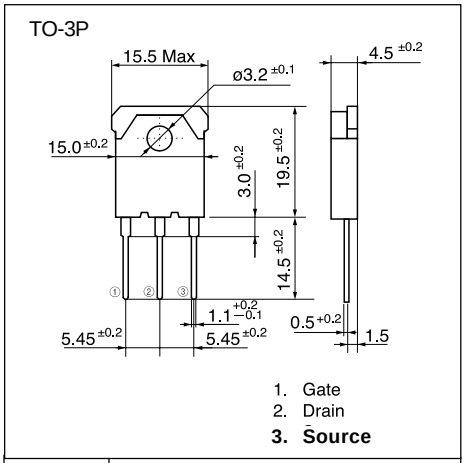
■ Features

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

■ Applications

- Switching regulators
- UPS (Uninterruptible Power Supply)
- DC-DC converters
- General purpose power amplifier

■ Outline Drawings



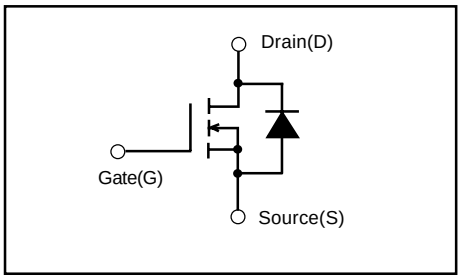
JEDEC	———
EIAJ	SC-65

■ Maximum ratings and characteristics

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

Item	Symbol	Rating	Unit
Drain-source voltage	V_{DS}	500	V
Continuous drain current	I_D	18	A
Pulsed drain current	$I_{D(puls)}$	72	A
Continuous reverse drain current	I_{DR}	18	A
Gate-source peak voltage	V_{GS}	±20	V
Max. power dissipation	P_D	125	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)**

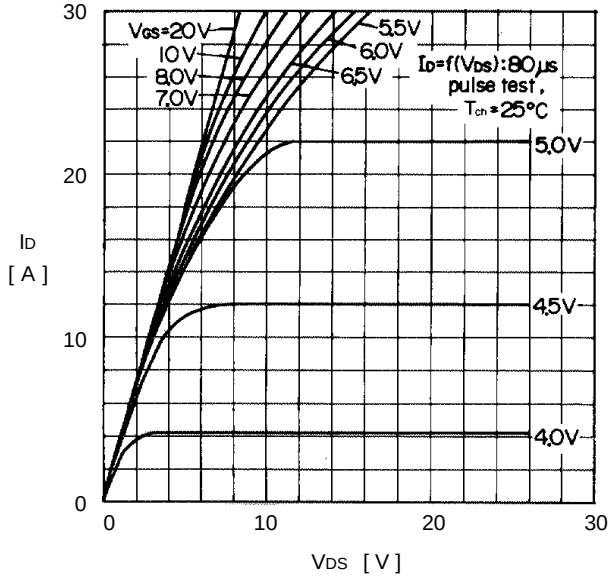
Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	$V_{(BR)DSS}$	I_D=1mA V_{GS}=0V	500			V
Gate threshold voltage	$V_{GS(th)}$	I_D=10mA V_{DS}=V_{GS}	2.1	3.0	4.0	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=500V V_{GS}=0V T_{ch}=25°C		10	500	μA
Gate-source leakage current	I_{GSS}	V_{GS}=±20V V_{DS}=0V		10	100	nA
Drain-source on-state resistance	$R_{DS(on)}$	I_D=8A V_{GS}=10V		0.28	0.33	Ω
Forward transconductance	g_{fs}	I_D=8A V_{DS}=25V	8.0	16.0		S
Input capacitance	C_{iss}	V_{DS}=25V		2600	4000	pF
Output capacitance	C_{oss}	V_{GS}=0V		330	500	
Reverse transfer capacitance	C_{rss}	f=1MHz		130	200	
Switching time	t_{on}	V_{CC}=30V R_G=50 Ω		130	195	ns
(t_{off}=$t_{d(off)}$+t_f)	$t_{d(off)}$	I_D=2.8A		330	430	
	t_f	V_{GS}=10V		110	140	
Diode forward on-voltage	V_{SD}	I_F=2xI_{DR} V_{GS}=0V T_{ch}=25°C		1.0	1.7	V
Reverse recovery time	t_{rr}	I_F=I_{DR} di/dt=100A/μs T_{ch}=25°C		600		ns

● **Thermal characteristics**

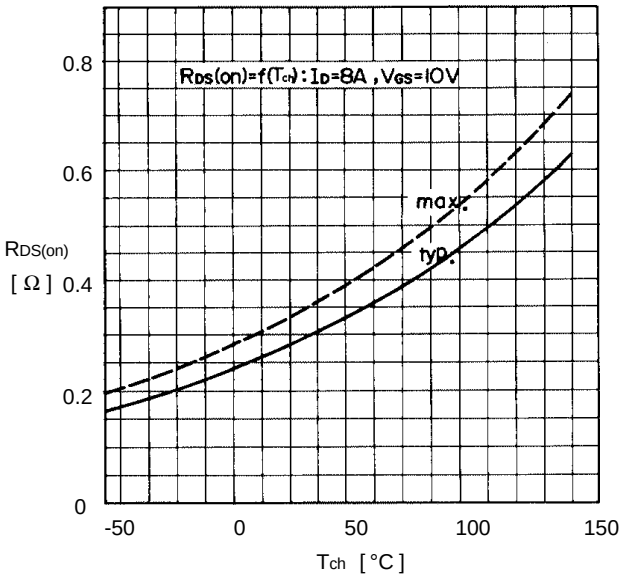
Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	$R_{th(ch-a)}$	channel to ambient			35	°C/W
	$R_{th(ch-c)}$	channel to case			1.0	°C/W

Characteristics

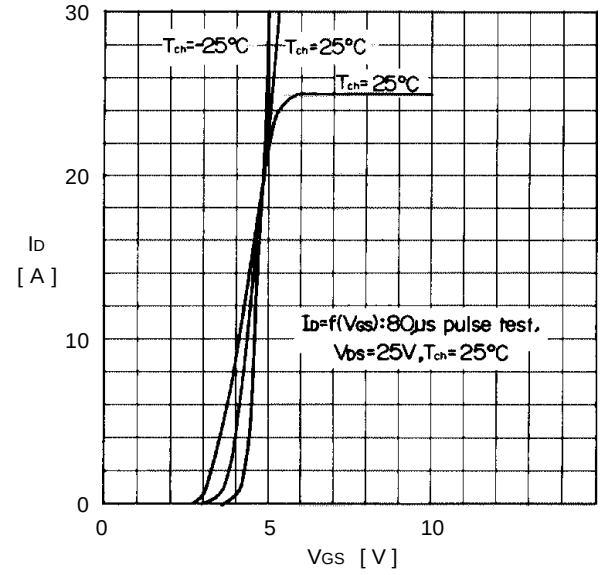
Typical output characteristics



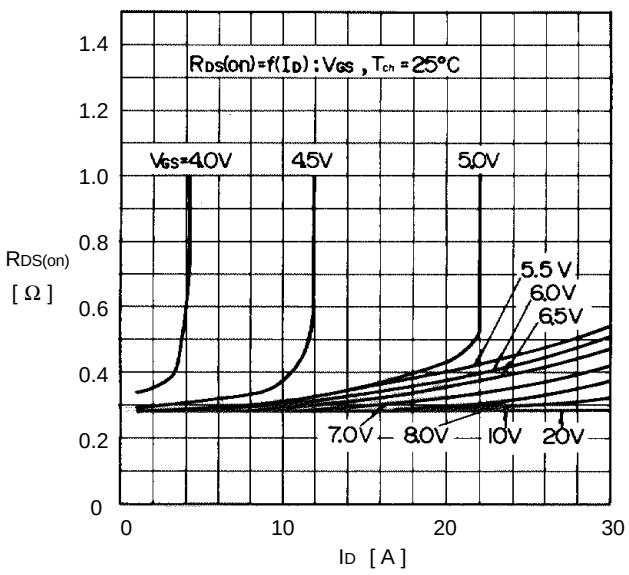
On state resistance vs. Tch



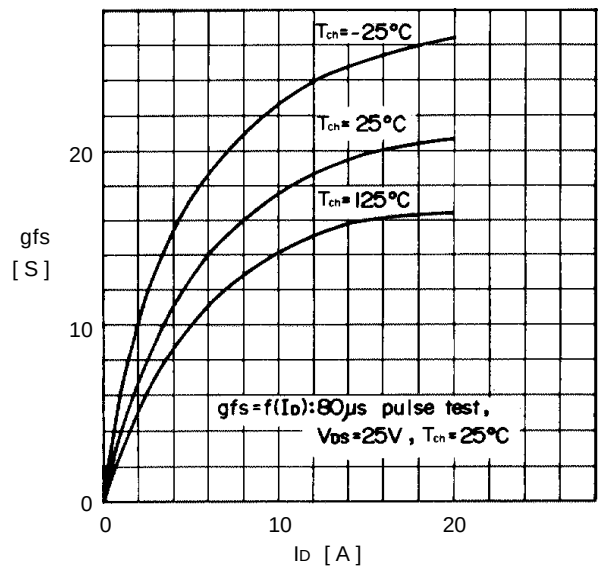
Typical transfer characteristics



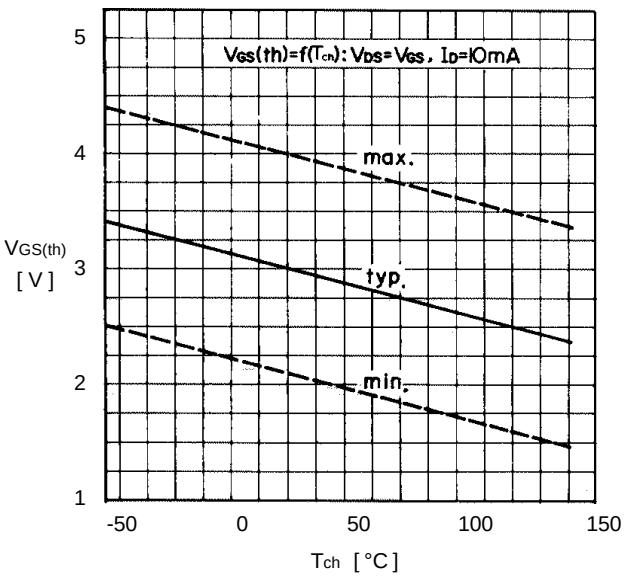
Typical Drain-Source on state resistance vs. ID



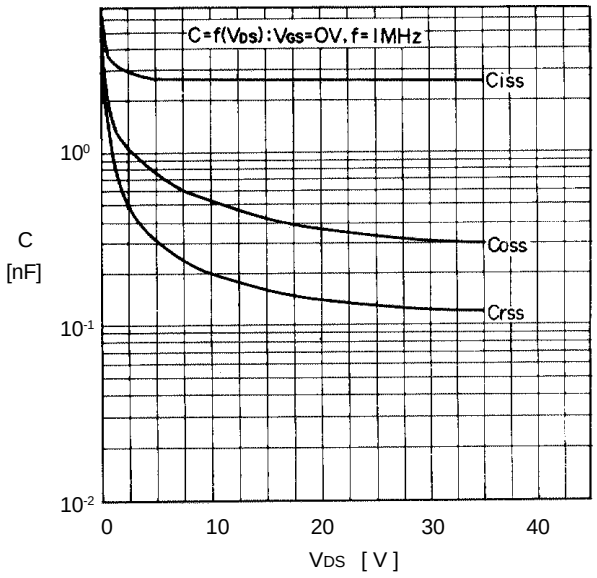
Typical forward transconductance vs. ID



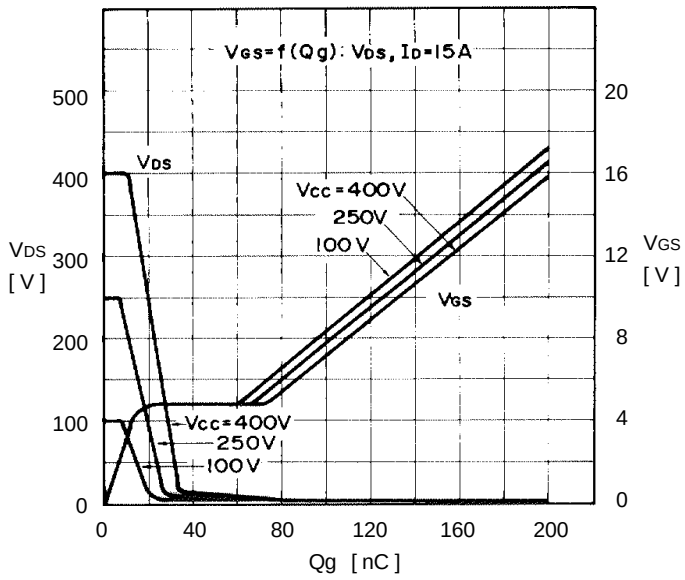
Gate threshold voltage vs. Tch



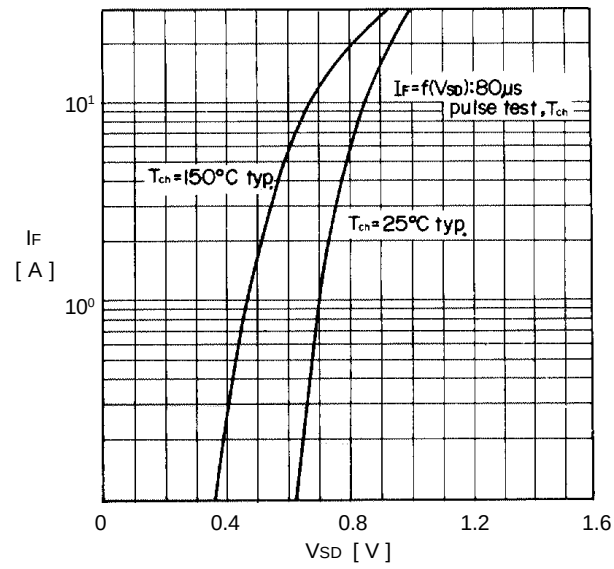
Typical capacitance vs. V_{DS}



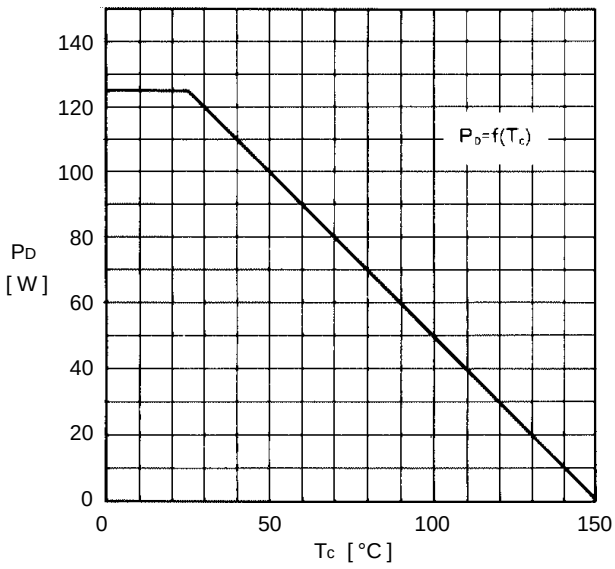
Typical input charge



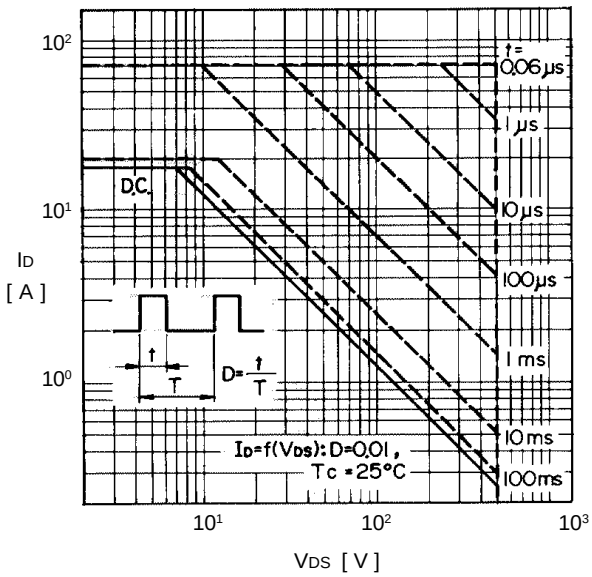
Forward characteristics of reverse diode



Allowable power dissipation vs. T_c



Safe operating area



Transient thermal impedance