2SK2147-01 SIPMOS® FUJI POWER MOS-FET

N-CHANNEL SILICON POWER MOS-FET

FAP-II SERIES

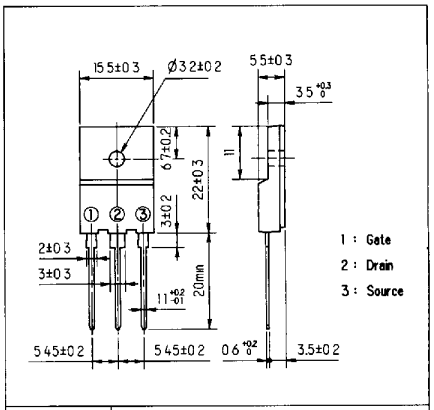
Features

- High speed switching
- Low on-resistance
- No secondary breakdown
- Low driving power
- High voltage
- $V_{GS} = \pm 30V$ Guarantee
- Avalanche-proof

Applications

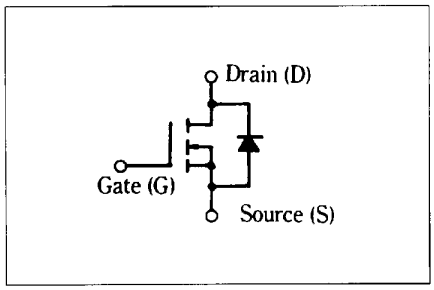
- Switching regulators
- UPS
- DC-DC converters
- General purpose power amplifier

Outline Drawings



JEDEC	———
EIAJ	———

Equivalent Circuit Schematic



Max. Ratings and Characteristics

Absolute Maximum Ratings(Tc=25°C) (unless otherwise specified)

Items	Symbols	Ratings	Units
Drain-source voltage	V_{DS}	900	V
Drain-gate voltage (R_{GS}=20KΩ)	V_{DGR}	900	V
Continuous drain current	I_D	6	A
Pulsed drain current	$I_{D(puls)}$	18	A
Gate-source voltage	V_{GS}	±30	V
Max. power dissipation	P_D	80	W
Operating and storage temperature range	T_{ch}	150	°C
	T_{stg}	−55～+150	°C

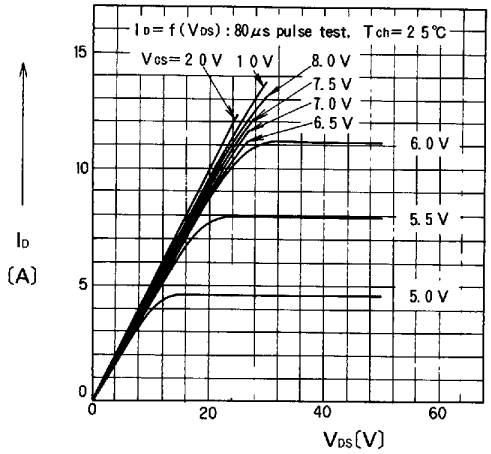
Electrical Characteristics(Tc=25°C) (unless otherwise specified)

Items	Symbols	Test Conditions		Min.	Typ.	Max.	Units
Drain-source breakdown voltage	$V_{(BR)DSS}$	I_D=1mA V_{GS}=0V		900			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}=900V 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=3A V_{GS}=10V			2.1	2.8	Ω
Forward transconductance	g_{fs}	I_D=3A V_{DS}=25V		2.0	4.5		S
Input capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V f =1MHz			1200	1800	pF
Output capacitance	C_{oss}				140	210	
Reverse transfer capacitance	C_{rss}				50	75	
Turn-on time t_{on} ($t_{on}=t_{d(on)}+t_r$)	$td_{(on)}$	V_{CC}=600V I_D=3A V_{GS}=10V R_{GS}=25Ω			35	55	ns
	t_r				110	170	
Turn-off time t_{off} ($t_{off}=t_{d(off)}+t_f$)	$td_{(off)}$				150	230	
	t_f				100	150	
Avalanche capability	I_{AV}	L=100μH T_{ch}=25°C		6			A
Continuous reverse drain current	I_{DR}					6	A
Pulsed reverse drain current	I_{DRM}					18	A
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}	$I_F=I_{DR}$ V_{GS}=0V			800		ns
Reverse recovery charge	Q_{rr}	$-dI_F/d_t$=100A/μs T_{ch}=25°C			5		μC

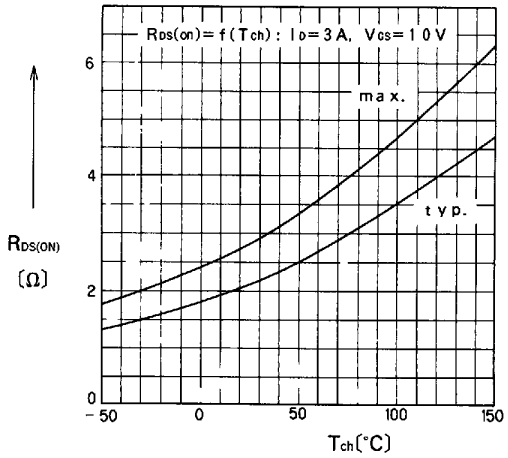
Thermal Characteristics

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	$R_{th(ch-a)}$	channel to air			30.0	°C/W
	$R_{th(ch-c)}$	channel to case			1.56	°C/W

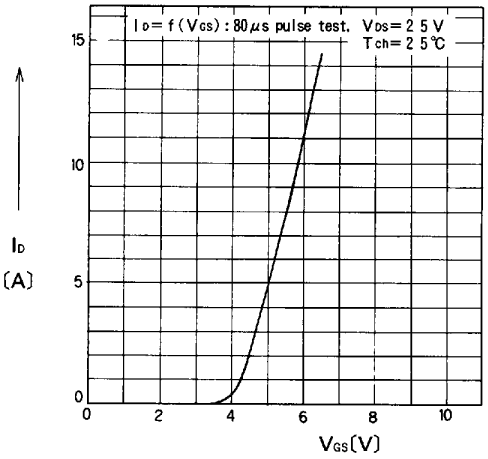
■ Characteristics



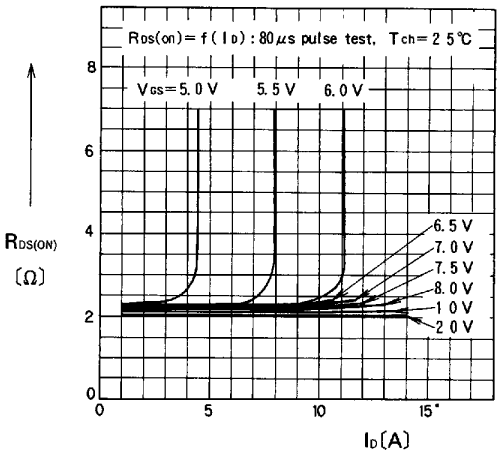
Typical Output Characteristics



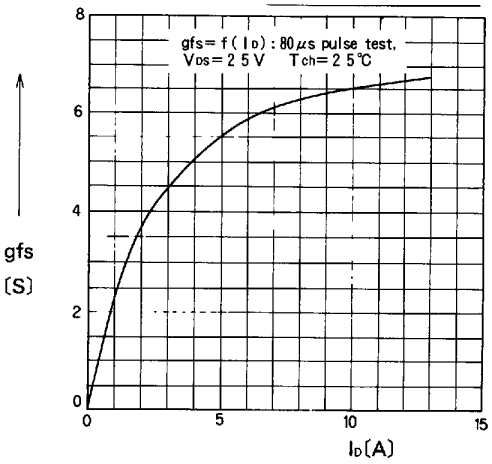
Drain-Source on-State Resistance vs. T_{ch}



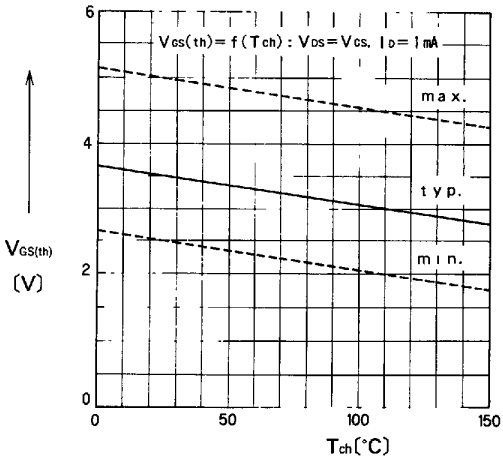
Typical Transfer Characteristics



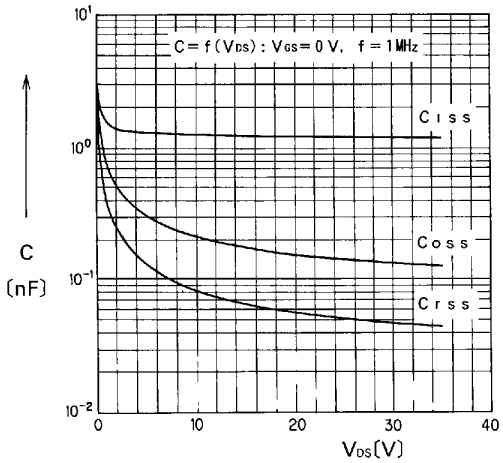
Typical Drain-Source on-State Resistance vs. I_D



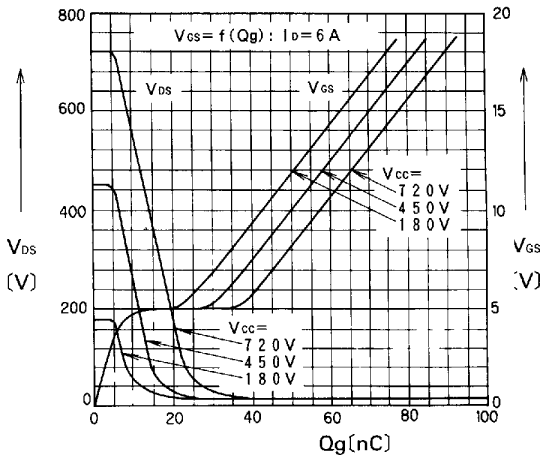
Typical Forward Transconductance vs. I_D



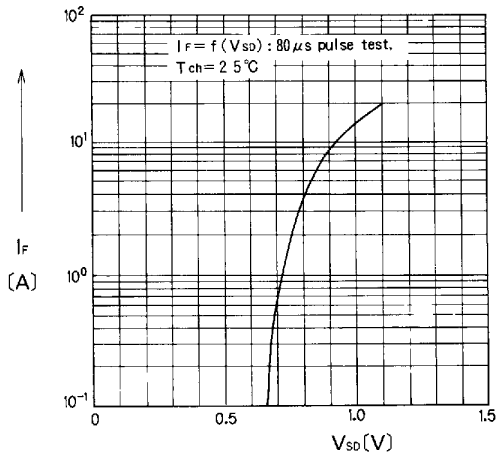
Gate Threshold Voltage vs. T_{ch}



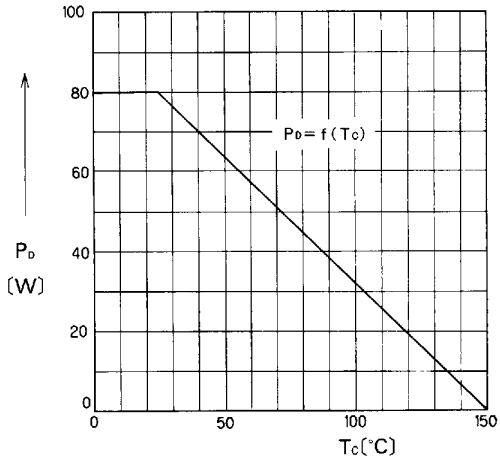
Typical Capacitance vs. V_{DS}



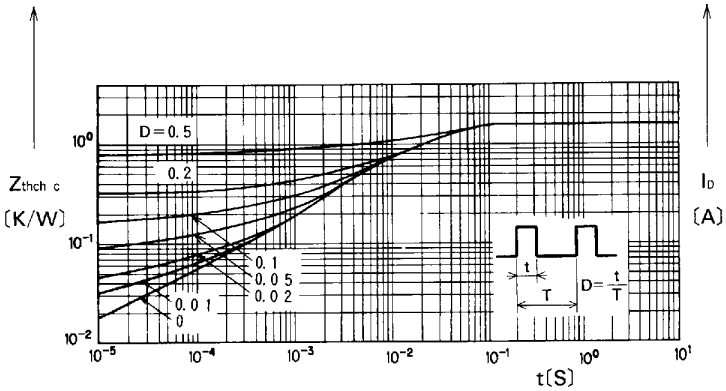
Typical Input Charge



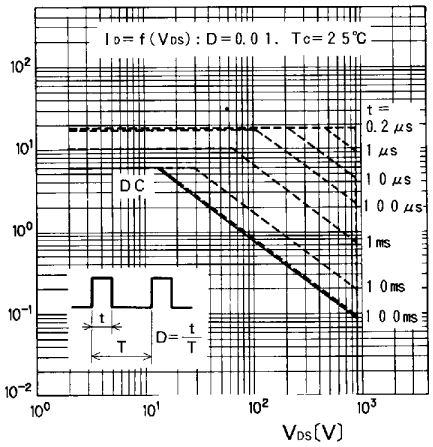
Forward Characteristics of Reverse Diode



Allowable Power Dissipation vs. T_c



Transient Thermal Impedance



Safe Operating Area