

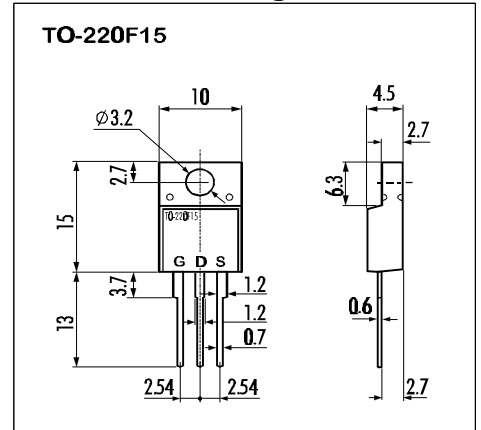
> **Features**

- 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 Drawing**

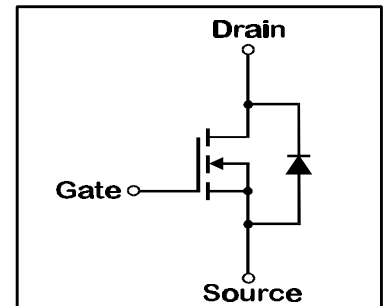


> **Maximum Ratings and Characteristics**

- Absolute Maximum Ratings ($T_C=25^\circ C$), unless otherwise specified

Item	Symbol	Rating	Unit
Drain-Source-Voltage	V_{DS}	500	V
Drain-Gate-Voltage($R_{GS}=20K\Omega$)	V_{DGR}	500	V
Continous Drain Current	I_D	3,5	A
Pulsed Drain Current	$I_{D(puls)}$	14	A
Gate-Source-Voltage	V_{GS}	± 30	V
Max. Power Dissipation	P_D	30	W
Operating and Storage Temperature Range	T_{ch}	150	$^\circ C$
	T_{stg}	-55 ~ +150	$^\circ C$

> **Equivalent Circuit**



- Electrical Characteristics ($T_C=25^\circ C$), unless otherwise specified

Item	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown-Voltage	$V_{(BR)DSS}$	$I_D=1mA$ $V_{GS}=0V$	500			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}	$V_{DS}=500V$ $T_{ch}=25^\circ C$		10	500	μA
		$V_{GS}=0V$ $T_{ch}=125^\circ C$		0,2	1,0	mA
Gate Source Leakage Current	I_{GSS}	$V_{GS}=\pm 30V$ $V_{DS}=0V$		10	100	nA
Drain Source On-State Resistance	$R_{DS(on)}$	$I_D=1,5A$ $V_{GS}=10V$		2	3	Ω
Forward Transconductance	g_{fs}	$I_D=1,5A$ $V_{DS}=25V$	1,5	3		S
Input Capacitance	C_{iss}	$V_{DS}=25V$		600	900	pF
Output Capacitance	C_{oss}	$V_{GS}=0V$		50	75	pF
Reverse Transfer Capacitance	C_{rss}	$f=1MHz$		10	15	pF
Turn-On-Time t_{on} ($t_{on}=t_{d(on)}+t_r$)	$t_{d(on)}$	$V_{CC}=300V$		15	25	ns
		$I_D=3,5A$		10	15	ns
Turn-Off-Time t_{off} ($t_{off}=t_{d(off)}+t_f$)	$t_{d(off)}$	$V_{GS}=10V$		40	60	ns
		$R_{GS}=10\Omega$		15	25	ns
Avalanche Capability	I_{AV}	$L=100\mu H$ $T_{ch}=25^\circ C$	3,5			A
Continous Reverse Drain Current	I_{DR}				3,5	A
Pulsed Reverse Drain Current	I_{DRM}				14	A
Diode Forward On-Voltage	V_{SD}	$I_F=2I_{DR}$ $V_{GS}=0V$ $T_{ch}=25^\circ C$		1,1	1,65	V
Reverse Recovery Time	t_{rr}	$I_F=I_{DR}$ $V_{GS}=0V$		400		ns
Reverse Recovery Charge	Q_{rr}	$-di_F/dt=100A/\mu s$ $T_{ch}=25^\circ C$		1,5		μC

- Thermal Characteristics

Item	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Thermal Resistance	$R_{th(ch-a)}$	channel to air			62,5	$^\circ C/W$
	$R_{th(ch-c)}$	channel to case			4,17	$^\circ C/W$

N-channel MOS-FET			
500V	3Ω	3.5A	30W

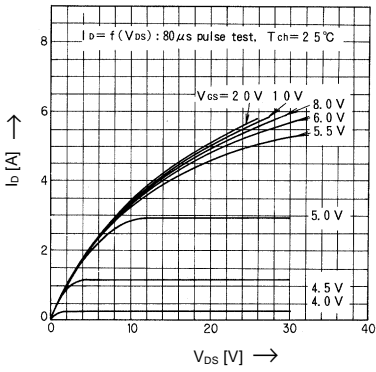
2SK2020-01MR

FAP-IIA Series

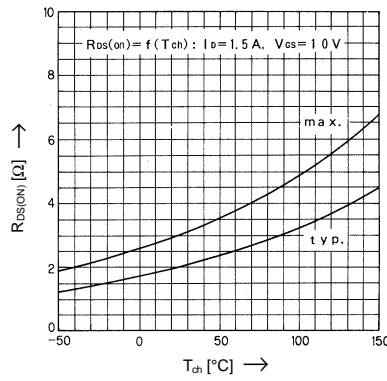


> Characteristics

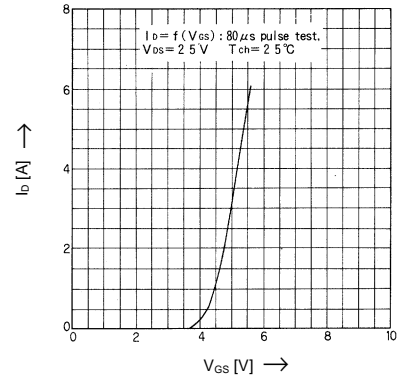
Typical Output Characteristics



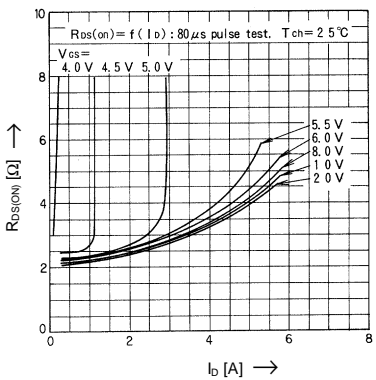
Drain-Source-On-State Resistance vs. Tch



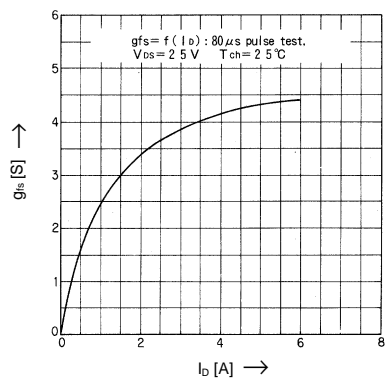
Typical Transfer Characteristics



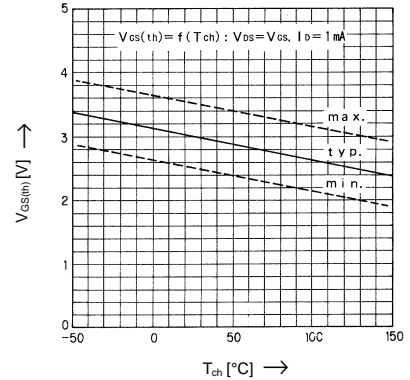
Typical Drain-Source-On-State-Resistance vs. Id



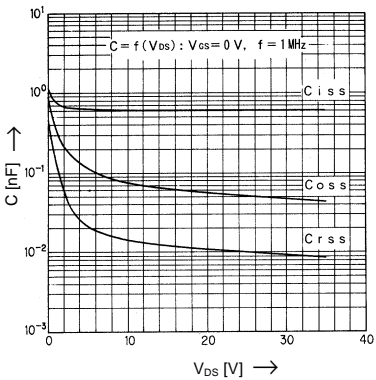
Typical Forward Transconductance vs. Id



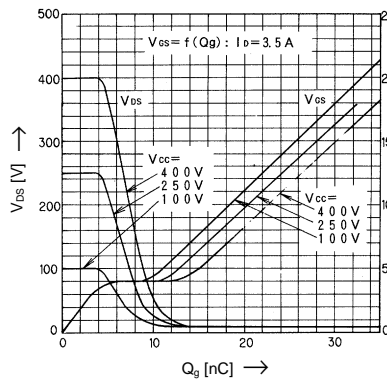
Gate Threshold Voltage vs. Tch



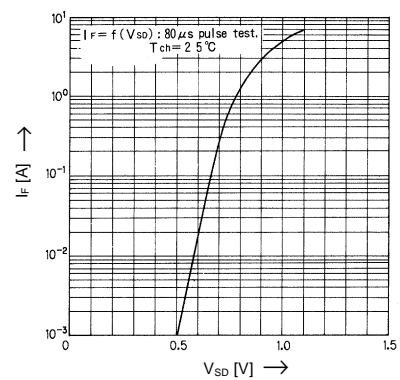
Typical Capacitance vs. Vds



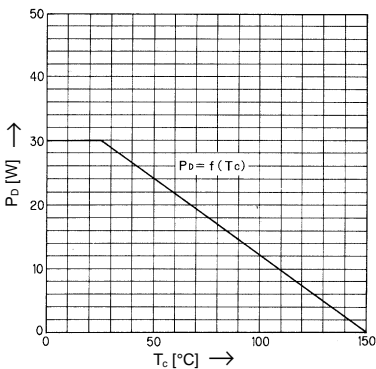
Typical Input Charge



Forward Characteristics of Reverse Diode



Allowable Power Dissipation vs. Tch



Safe operation area

