

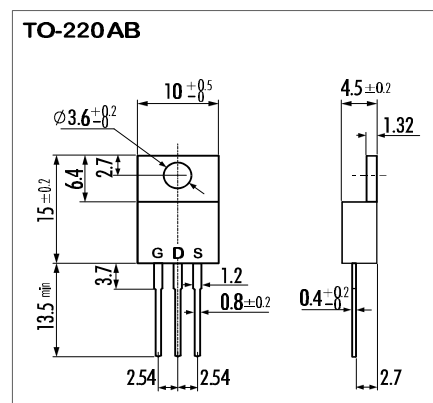
> Features

- 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

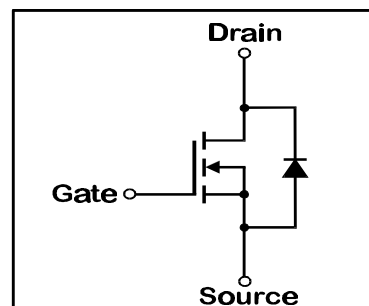


> Maximum Ratings and Characteristics

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

Item	Symbol	Rating	Unit
Drain-Source-Voltage	V _{DS}	200	V
Drain-Gate-Voltage (R _{GS} =20KΩ)	V _{DGR}	200	V
Continous Drain Current	I _D	18	A
Pulsed Drain Current	I _{D(puls)}	72	A
Gate-Source-Voltage	V _{GS}	±30	V
Max. Power Dissipation	P _D	50	W
Operating and Storage Temperature Range	T _{ch}	150	°C
	T _{stg}	-55 ~ +150	°C

> Equivalent Circuit



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

Item	Symbol	Test conditions		Min.	Typ.	Max.	Unit
Drain-Source Breakdown-Voltage	$V_{(BR)DSS}$	$I_D=1mA$	$V_{GS}=0V$	200			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}	$V_{DS}=200V$	$T_{ch}=25^{\circ}C$		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	$R_{DS(on)}$	$I_D=9A$	$V_{GS}=10V$		0,15	0,18	Ω
Forward Transconductance	g_{fs}	$I_D=9A$	$V_{DS}=25V$	4,0	9,0		S
Input Capacitance	C_{iss}	$V_{DS}=25V$			1100	1650	pF
Output Capacitance	C_{oss}	$V_{GS}=0V$			220	330	pF
Reverse Transfer Capacitance	C_{rss}	$f=1MHz$			100	150	pF
Turn-On-Time t_{on} ($t_{on}=t_{d(on)}+t_r$)	$t_{d(on)}$	$V_{CC}=150V$			15	30	ns
	t_r	$I_D=18A$			80	120	ns
Turn-Off-Time t_{off} ($t_{on}=t_{d(off)}+t_f$)	$t_{d(off)}$	$V_{GS}=10V$			60	90	ns
	t_f	$R_{GS}=10\Omega$			40	60	ns
Avalanche Capability	I_{AV}	$L = 100\mu H$	$T_{ch}=25^{\circ}C$	18,0			A
Diode Forward On-Voltage	V_{SD}	$I_F=2xI_{DR}$ $V_{GS}=0V$ $T_{ch}=25^{\circ}C$			1,5	2,25	V
Reverse Recovery Time	t_{rr}	$I_F=I_{DR}$ $V_{GS}=0V$			165		ns
Reverse Recovery Charge	Q_{rr}	$-dI_F/dt=100A/\mu s$ $T_{ch}=25^{\circ}C$			1300		μC

- Thermal Characteristics

Item	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Thermal Resistance	$R_{th(ch-a)}$	channel to air			75,0	°C/W
	$R_{th(ch-c)}$	channel to case			2,5	°C/W

N-channel MOS-FET			
200V	0,18Ω	18A	50W

2SK2521-01

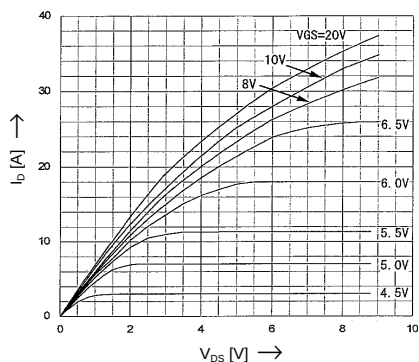
FAP-II Series

FUJII
ELECTRIC

> Characteristics

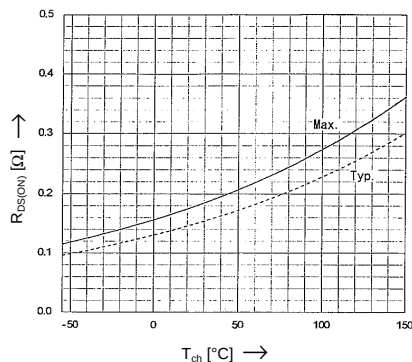
Typical Output Characteristics

$I_D = f(V_{DS})$; 80μs pulse test; $T_C = 25^\circ\text{C}$



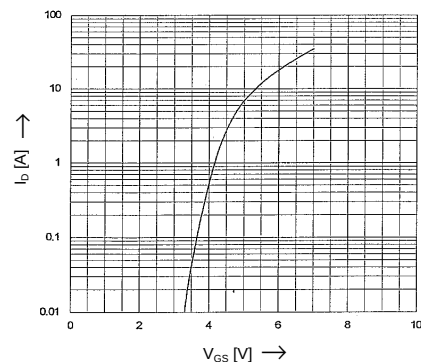
Drain-Source On-State Resistance

$R_{DS(on)} = f(T_{ch})$; $I_D = 9A$; $V_{GS} = 10V$



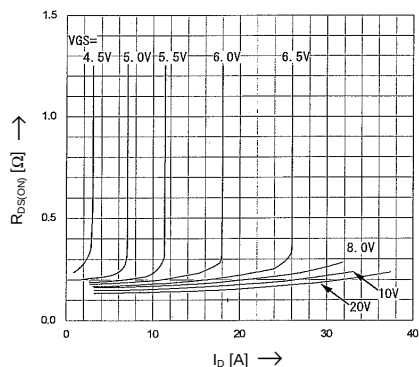
Typical Transfer Characteristics

$I_D = f(V_{GS})$; 80μs pulse test; $V_{DS} = 25V$; $T_{ch} = 25^\circ\text{C}$



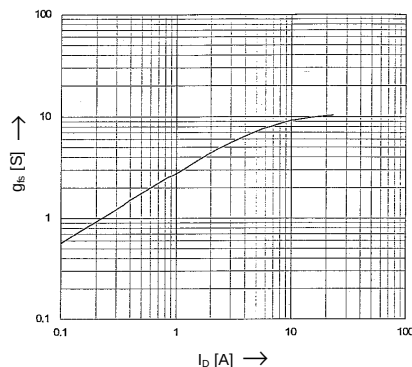
Typical Drain-Source On-State-Resistance

$R_{DS(on)} = f(I_D)$; 80μs pulse test; $T_C = 25^\circ\text{C}$



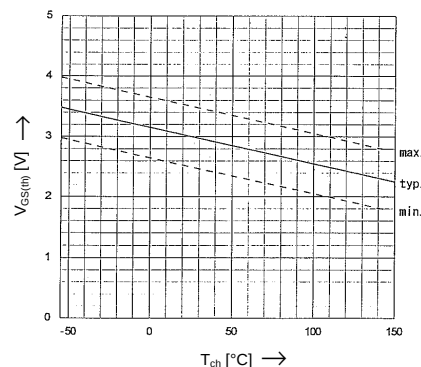
Typical Transconductance

$g_{fs} = f(I_D)$; 80μs pulse test; $V_{DS} = 25V$; $T_{ch} = 25^\circ\text{C}$



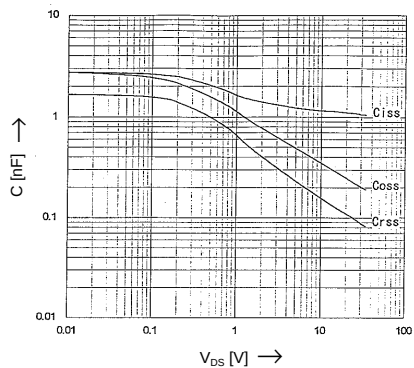
Gate Threshold Voltage vs. T_{ch}

$V_{GS(th)} = f(T_{ch})$; $I_D = 1mA$; $V_{DS} = V_{GS}$



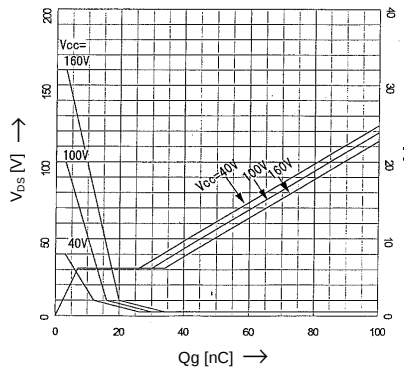
Typical Capacitances

$C = f(V_{DS})$; $V_{GS} = 0V$; $f = 1MHz$



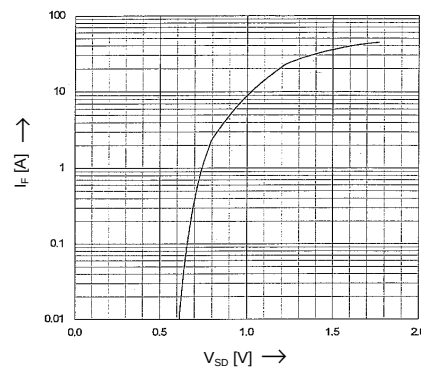
Typical Gate Charge Characteristics

$V_{GS} = f(Q_g)$; $I_D = 18A$



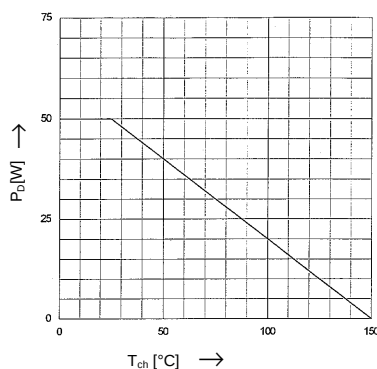
Forward Characteristics of Reverse Diode

$I_F = f(V_{SD})$; 80μs pulse test $T_{ch} = 25^\circ\text{C}$; $V_{GS} = 0V$



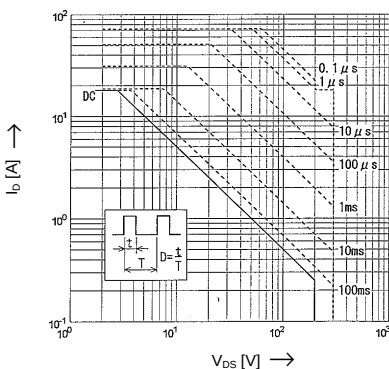
Power Dissipation

$P_D = f(T_C)$



Safe Operation Area

$I_D = f(V_{DS})$; $D = 0.01$; $T_C = 25^\circ\text{C}$



Transient Thermal impedance

$Z_{th(jc)} = f(t)$ parameter: $D = t/T$

