

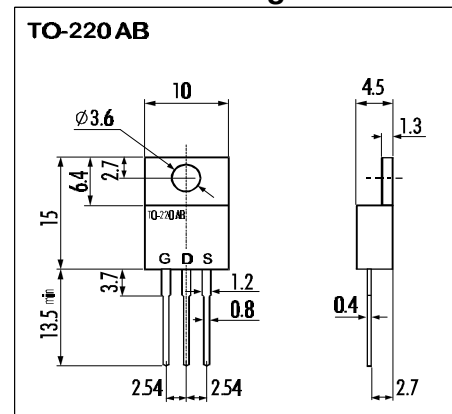
> Features

- High Current
- Low On-Resistance
- No Secondary Breakdown
- Low Driving Power
- High Forward Transconductance

> Applications

- Motor Control
- General Purpose Power Amplifier
- DC-DC converters

> Outline Drawing

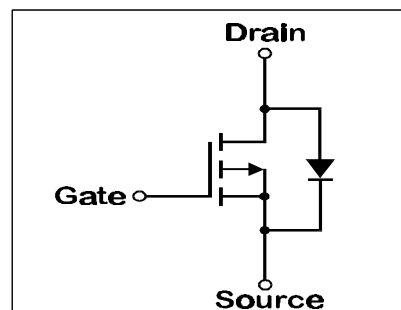


> Maximum Ratings and Characteristics

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

Item	Symbol	Rating	Unit
Drain-Source-Voltage	V_{DS}	-60	V
Continuous Drain Current	I_D	25	A
Pulsed Drain Current	$I_{D(puls)}$	100	A
Gate-Source-Voltage	V_{GS}	± 20	V
Maximum Avalanche Energy	E_{AV}	325,9	mJ
Max. Power Dissipation	P_D	50	W
Operating and Storage Temperature Range	T_{ch}	150	$^{\circ}\text{C}$
	T_{stg}	-55 ~ +150	$^{\circ}\text{C}$

> 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	$V_{(BR)DSS}$	$I_D=-1\text{mA}$ $V_{GS}=0\text{V}$	-60			V
Gate Threshold Voltage	$V_{GS(th)}$	$I_D=-1\text{mA}$ $V_{DS}=V_{GS}$	-1,0	-1,5	-2,5	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-60\text{V}$ $T_{ch}=25^{\circ}\text{C}$		-10	-500	μA
		$V_{GS}=0\text{V}$ $T_{ch}=125^{\circ}\text{C}$		-0,2	-1,0	mA
Gate Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20\text{V}$ $V_{DS}=0\text{V}$		10	100	nA
Drain Source On-State Resistance	$R_{DS(on)}$	$I_D=-12,5\text{A}$ $V_{GS}=-4\text{V}$		0,08	0,11	Ω
		$I_D=-12,5\text{A}$ $V_{GS}=-10\text{V}$		0,045	0,06	Ω
Forward Transconductance	g_{fs}	$I_D=-12,5\text{A}$ $V_{DS}=-25\text{V}$	7,5	15		S
Input Capacitance	C_{iss}	$V_{DS}=-25\text{V}$ $V_{GS}=0\text{V}$		2000	3000	pF
Output Capacitance	C_{oss}	$f=1\text{MHz}$		700	1050	pF
Reverse Transfer Capacitance	C_{rss}			450	680	pF
Turn-On-Time t_{on} ($t_{on}=t_{d(on)}+t_r$)	$t_{d(on)}$	$V_{CC}=-30\text{V}$ $I_D=-25\text{A}$		15	25	ns
	t_r	$V_{GS}=-10\text{V}$ $R_{GS}=10\Omega$		80	120	ns
Turn-Off-Time t_{off} ($t_{off}=t_{d(off)}+t_f$)	$t_{d(off)}$			190	290	ns
	t_f			90	140	ns
Avalanche Capability	I_{AV}	$L=100\mu\text{H}$ $T_{ch}=25^{\circ}\text{C}$	-25			A
Diode Forward On-Voltage	V_{SD}	$I_F=2I_{DR}$ $V_{GS}=0\text{V}$ $T_{ch}=25^{\circ}\text{C}$		-2,0	-3,0	V
Reverse Recovery Time	t_{rr}	$I_F=I_{DR}$ $V_{GS}=0\text{V}$		160		ns
Reverse Recovery Charge	Q_{rr}	$-dI_F/dt=100\text{A}/\mu\text{s}$ $T_{ch}=25^{\circ}\text{C}$		0,9		μC

- Thermal Characteristics

Item	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Thermal Resistance	$R_{th(ch-a)}$	channel to air			75	$^{\circ}\text{C}/\text{W}$
	$R_{th(ch-c)}$	channel to case			2,50	$^{\circ}\text{C}/\text{W}$

P-channel MOS-FET			
-60V	0,06Ω	25A	50W

2SJ475-01

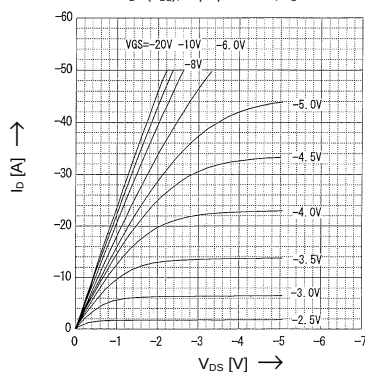
FAP-III Series

FUJI
ELECTRIC

> Characteristics

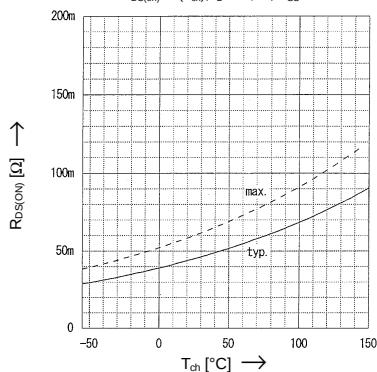
Typical Output Characteristics

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



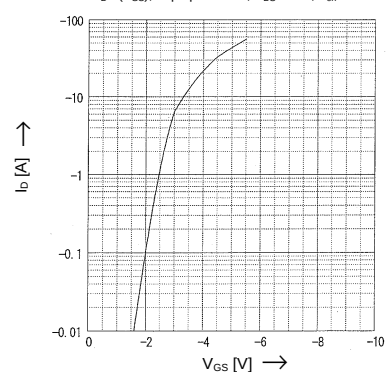
Drain-Source On-State Resistance vs. T_{ch}

$R_{DS(on)} = f(T_{ch})$; $I_D = -12.5\text{A}$; $V_{GS} = 10\text{V}$



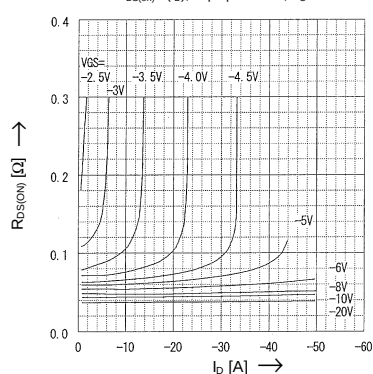
Typical Transfer Characteristics

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



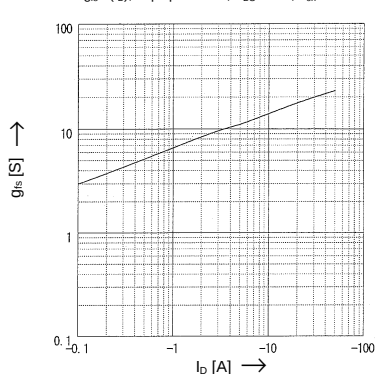
Typical Drain-Source On-State-Resistance vs. I_D

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



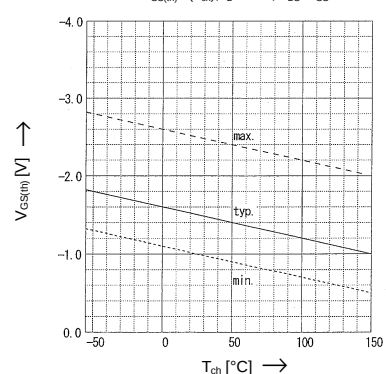
Typical Forward Transconductance vs. I_D

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



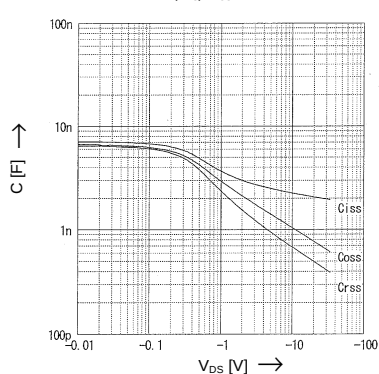
Gate Threshold Voltage vs. T_{ch}

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



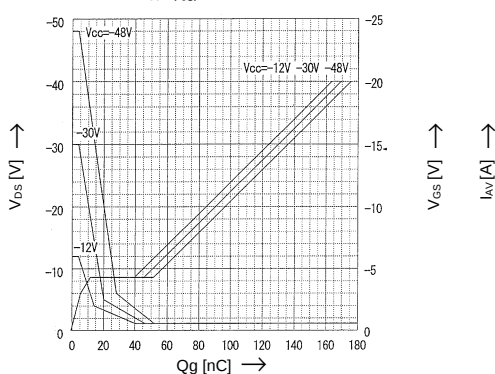
Typical Capacitances vs. V_{DS}

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



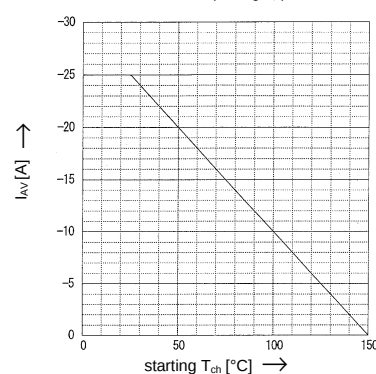
Typical Gate Charge Characteristic

$V_{GS} = f(Q_g)$; $I_D = -25\text{A}$; $T_C = 25^\circ\text{C}$



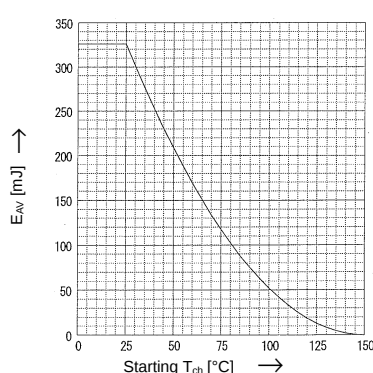
Maximum Avalanche Current vs. starting T_{ch}

$I_{AV} = f(\text{starting } T_{ch})$



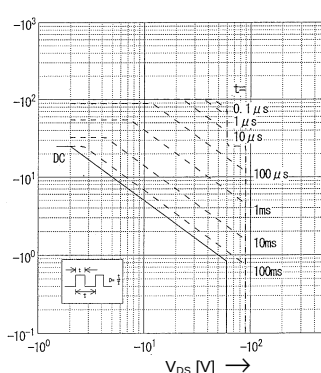
Maximum Avalanche Energy vs. starting T_{ch}

$E_{AV} = f(\text{starting } T_{ch})$; $V_{CC} = -24\text{V}$; $I_{AV} \geq -25\text{A}$



Safe Operation Area

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



Transient Thermal impedance

$Z_{th(ch-e)} = f(t)$ parameter: $D = t/T$

