FUJI ELECTRIC

2SJ475-01

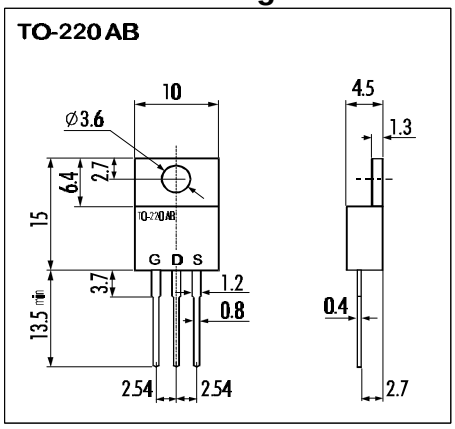
FAP-III Series

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

> Features

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

> Outline Drawing



> Applications

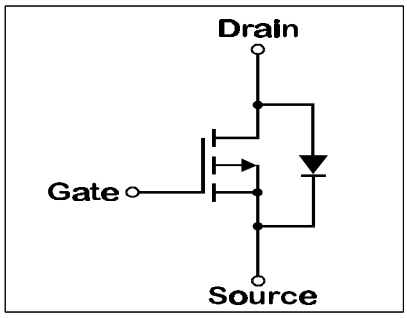
- Motor Control
- General Purpose Power Amplifier
- DC-DC converters

> Maximum Ratings and Characteristics

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

Item	Symbol	Rating	Unit
Drain-Source-Voltage	V_{DS}	-60	V
Continous 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	°C
	T_{stg}	-55 ~ +150	°C

> Equivalent Circuit



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

- Thermal Characteristics

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

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

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FAP-III Series

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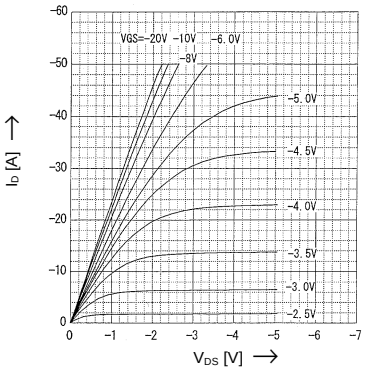
> Characteristics

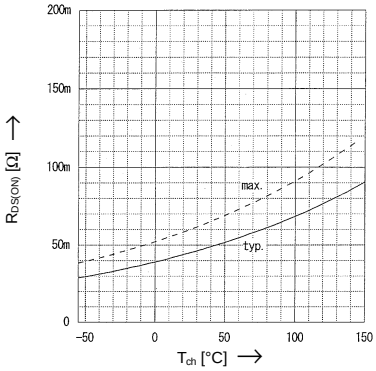
Typical Output Characteristics

$I_D=f(V_{DS})$; 80µs pulse test; $T_C=25°C$



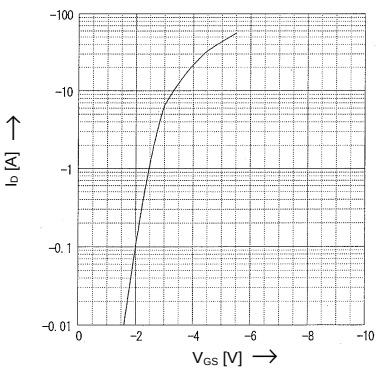
Drain-Source On-State Resistance vs. T_{ch}

$R_{DS(on)} = f(T_{ch})$; I_D=-12,5A; V_{GS}=10V



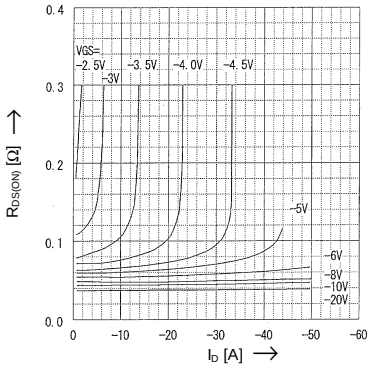
Typical Transfer Characteristics

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



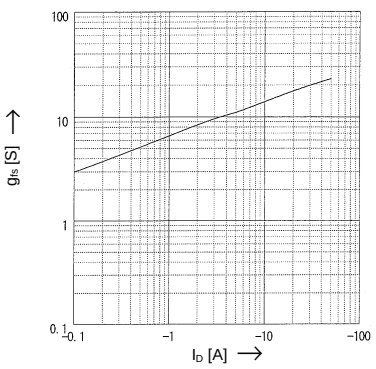
Typical Drain-Source On-State-Resistance vs. I_D

$R_{DS(on)}=f(I_D)$; 80µs pulse test; $T_C=25°C$



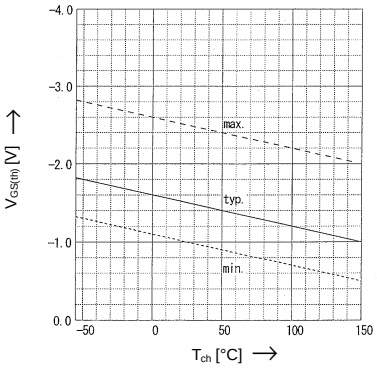
Typical Forward Transconductance vs. I_D

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



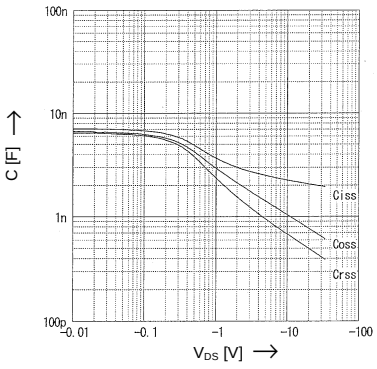
Gate Threshold Voltage vs. T_{ch}

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



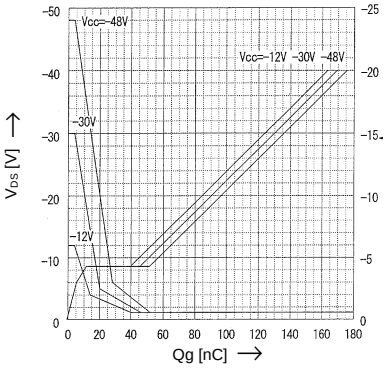
Typical Capacitances vs. V_{DS}

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



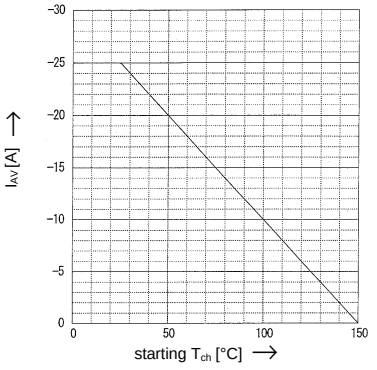
Typical Gate Charge Characteristic

$V_{GS}=f(Qg)$; I_D=-25A; Tc=25°C



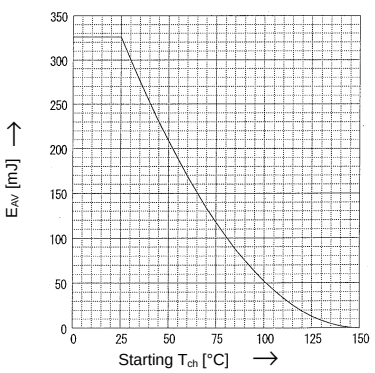
Maximum Avalanche Current vs. starting T_{ch}

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



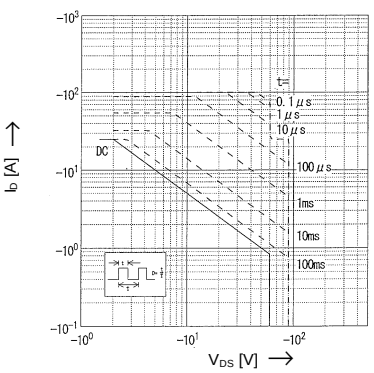
Maximum Avalanche Energy vs. starting T_{ch}

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



Safe Operation Area

$I_D=f(V_{DS})$: D=0,01, Tc=25°C



Transient Thermal impedance

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