

N-channel MOS-FET			
450V	1Ω	9A	80W

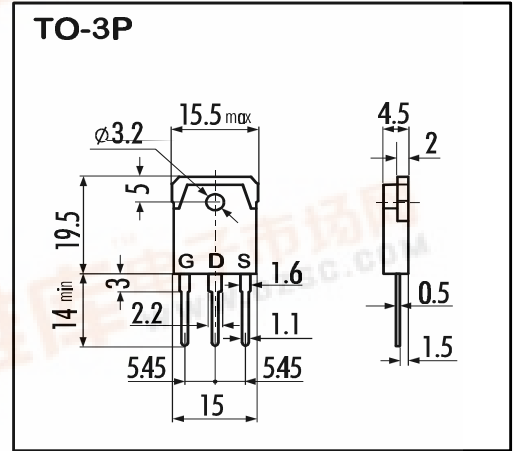
> **Features**

- High Speed Switching
- Low On-Resistance
- No Secondary Breakdown
- Low Driving Power
- High Voltage
- $V_{GS} = \pm 30V$ Guarantee
- Repetitive Avalanche Rated

> **Applications**

- Switching Regulators
- UPS
- DC-DC converters
- General Purpose Power Amplifier

> **Outline Drawing**

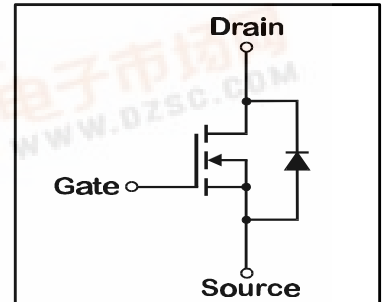


> **Maximum Ratings and Characteristics**

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

Item	Symbol	Rating	Unit
Drain-Source-Voltage	V_{DS}	450	V
Drain-Gate-Voltage ($R_{GS}=20K\Omega$)	V_{DGR}	450	V
Continous Drain Current	I_D	9	A
Pulsed Drain Current	$I_{D(puls)}$	36	A
Gate-Source-Voltage	V_{GS}	± 30	V
Max. Power Dissipation	P_D	80	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	$V_{(BR)DSS}$	$I_D=1mA$ $V_{GS}=0V$	450			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}	$V_{DS}=450V$ $T_{ch}=25^\circ C$			500	μA
		$V_{GS}=0V$ $T_{ch}=125^\circ C$			1,0	mA
Gate Source Leakage Current	I_{GSS}	$V_{GS}=\pm 30V$ $V_{DS}=0V$		10	100	nA
Drain Source On-State Resistance	$R_{DS(on)}$	$I_D=4,5A$ $V_{GS}=10V$		0,87	1,0	Ω
Forward Transconductance	g_{fs}	$I_D=4,5A$ $V_{DS}=25V$	3,0	6,6		S
Input Capacitance	C_{iss}	$V_{DS}=25V$		1150	1700	pF
Output Capacitance	C_{oss}	$V_{GS}=0V$		130	200	pF
Reverse Transfer Capacitance	C_{rss}	$f=1MHz$		50	75	pF
Turn-On-Time t_{on} ($t_{on}=t_{d(on)}+t_r$)	$t_{d(on)}$	$V_{CC}=300V$		20	30	ns
		$I_D=10A$		50	75	ns
Turn-Off-Time t_{off} ($t_{off}=t_{d(off)}+t_f$)	$t_{d(off)}$	$V_{GS}=10V$		60	90	ns
		$R_{GS}=10\Omega$		35	55	ns
Avalanche Capability	I_{AV}	$L=100\mu H$ $T_{ch}=25^\circ C$	9,0			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}	$I_F=I_{DR}$ $V_{GS}=0V$		550		ns
Reverse Recovery Charge	Q_{rr}	$-dI_F/dt=100A/\mu s$ $T_{ch}=25^\circ C$		3,9		μC

- Thermal Characteristics

Item	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Thermal Resistance	$R_{th(ch-a)}$	channel to air			35	$^\circ C/W$
	$R_{th(ch-c)}$	channel to case			1,56	$^\circ C/W$

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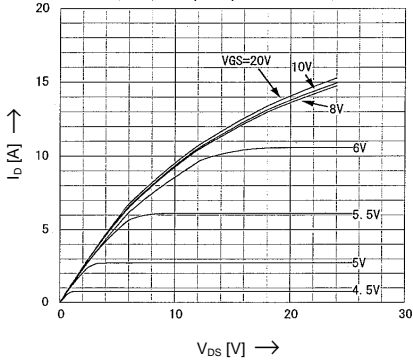
2SK2525-01

FAP-II Series

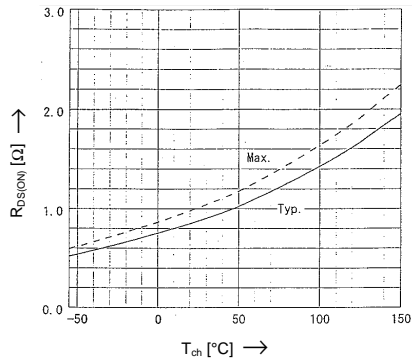


> Characteristics

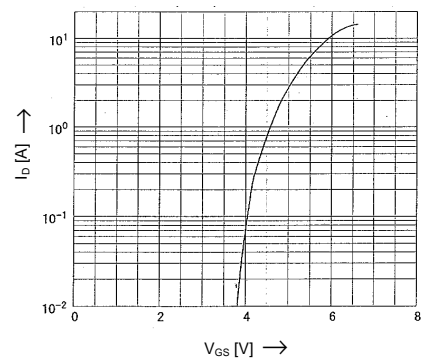
Typical Output Characteristics
 $I_D = f(V_{DS})$; 80μs pulse test; $T_C = 25^\circ\text{C}$



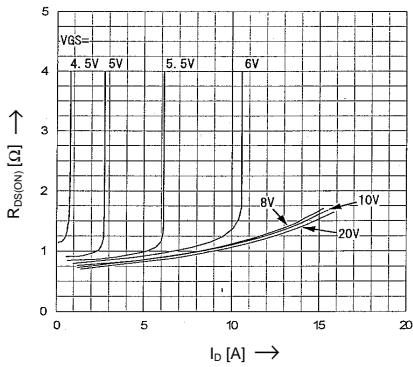
Drain-Source On-State Resistance
 $R_{DS(on)} = f(T_{ch})$; $I_D = 4.5\text{A}$; $V_{GS} = 10\text{V}$



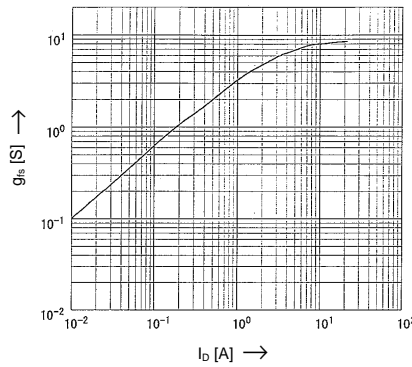
Typical Transfer Characteristics
 $I_D = f(V_{GS})$; 80μs pulse test; $V_{DS} = 25\text{V}$; $T_{ch} = 25^\circ\text{C}$



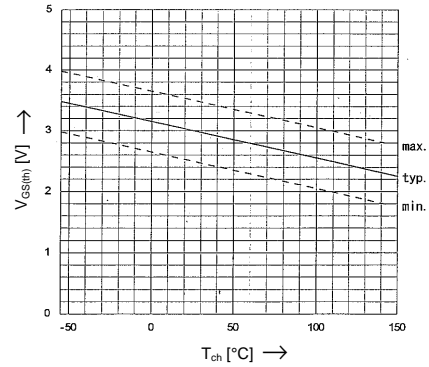
Typical Drain-Source On-State-Resistance
 $R_{DS(on)} = f(I_D)$; 80μs pulse test; $T_C = 25^\circ\text{C}$



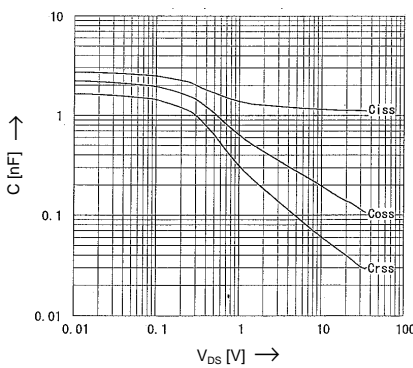
Typical Forward Transconductance
 $g_{fs} = f(I_D)$; 80μs pulse test; $V_{DS} = 25\text{V}$; $T_{ch} = 25^\circ\text{C}$



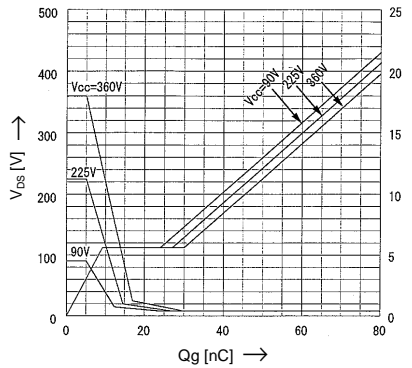
Gate Threshold Voltage
 $V_{GS(th)} = f(T_{ch})$; $I_D = 1\text{mA}$; $V_{DS} = V_{GS}$



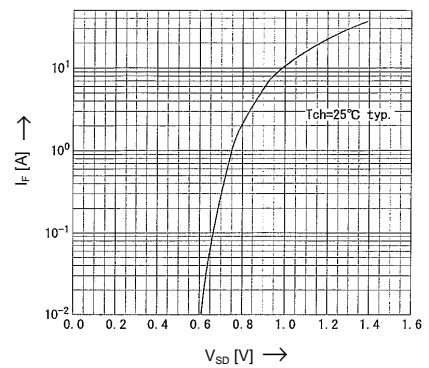
Typical Capacitances
 $C = f(V_{DS})$; $V_{GS} = 0\text{V}$; $f = 1\text{MHz}$



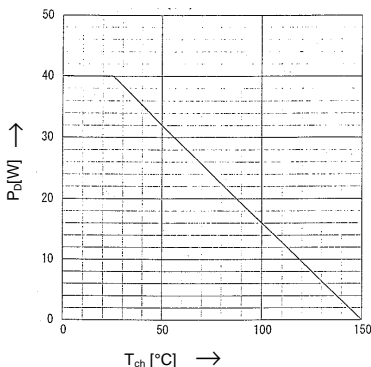
Typical Gate Charge Characteristics
 $V_{GS} = f(Q_g)$; $I_D = 9\text{A}$; $T_C = 25^\circ\text{C}$



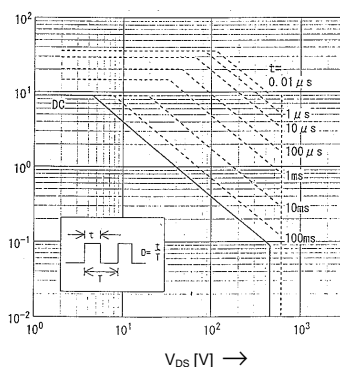
Forward Characteristics of Reverse Diode
 $I_F = f(V_{SD})$; 80μs pulse test; $V_{GS} = 0\text{V}$



Power Dissipation
 $P_D = f(T_C)$



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



$Z_{th(ch-e)}$ [K/W]

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

