

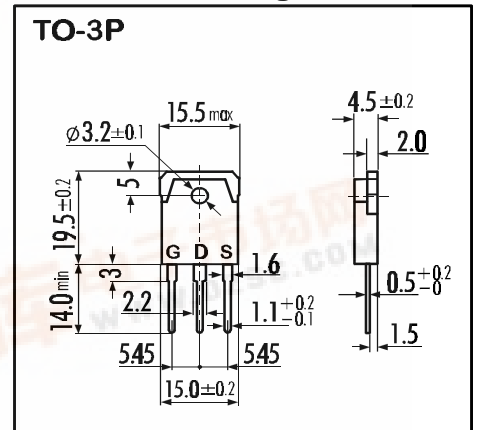
> Features

- Include Fast Recovery Diode
- High Voltage
- Low Driving Power

> Applications

- Motor Control
- Inverters
- Choppers

> Outline Drawing

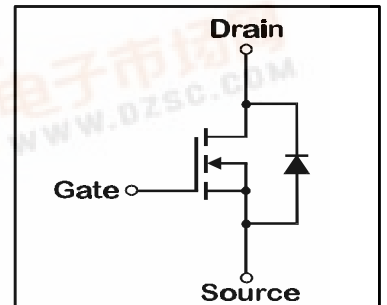


> Maximum Ratings and Characteristics

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

Item	Symbol	Rating	Unit
Drain-Source-Voltage	$V_{DS}$	250	V
Drain-Gate-Voltage ( $R_{GS}=20K\Omega$ )	$V_{DGR}$	250	V
Continous Drain Current	$I_D$	20	A
Pulsed Drain Current	$I_{D(puls)}$	80	A
Gate-Source-Voltage	$V_{GS}$	$\pm 20$	V
Max. Power Dissipation	$P_D$	100	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	$V_{(BR)DSS}$	$I_D=1\text{mA}$ $V_{GS}=0\text{V}$	250			V
Gate Threshold Voltage	$V_{GS(th)}$	$I_D=1\text{mA}$ $V_{DS}=V_{GS}$	2,1	3,0	4,0	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=250\text{V}$ $T_{ch}=25^\circ\text{C}$		10	500	$\mu\text{A}$
		$V_{GS}=0\text{V}$ $T_{ch}=125^\circ\text{C}$		0,5	2,0	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	$R_{DS(on)}$	$I_D=10\text{A}$ $V_{GS}=10\text{V}$		0,16	0,25	$\Omega$
Forward Transconductance	$g_{fs}$	$I_D=10\text{A}$ $V_{DS}=25\text{V}$	6	12		S
Input Capacitance	$C_{iss}$	$V_{DS}=25\text{V}$		1100	1600	pF
Output Capacitance	$C_{oss}$	$V_{GS}=0\text{V}$		240	360	pF
Reverse Transfer Capacitance	$C_{rss}$	$f=1\text{MHz}$		130	200	pF
Turn-On-Time $t_{on}$ ( $t_{on}=t_{d(on)}+t_r$ )	$t_{d(on)}$	$V_{CC}=150\text{V}$		30	45	ns
	$t_r$	$I_D=20\text{A}$		50	80	ns
Turn-Off-Time $t_{off}$ ( $t_{off}=t_{d(off)}+t_f$ )	$t_{d(off)}$	$V_{GS}=10\text{V}$		200	300	ns
	$t_f$	$R_{GS}=25\Omega$		100	150	ns
Avalanche Capability	$I_{AV}$	$L=100\mu\text{H}$ $T_{ch}=25^\circ\text{C}$	15			A
Continous Reverse Drain Current	$I_{DR}$				20	A
Pulsed Reverse Drain Current	$I_{DRM}$				80	A
Diode Forward On-Voltage	$V_{SD}$	$I_F=2 \times I_{DR}$ $V_{GS}=0\text{V}$ $T_{ch}=25^\circ\text{C}$		0,95	1,8	V
Reverse Recovery Time	$t_{rr}$	$I_F=I_{DR}$ $V_{GS}=0\text{V}$		100	150	ns
Reverse Recovery Charge	$Q_{rr}$	$-di_F/dt=100\text{A}/\mu\text{s}$ $T_{ch}=25^\circ\text{C}$		0,35		$\mu\text{C}$

- Thermal Characteristics

Item	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Thermal Resistance	$R_{th(ch-a)}$	channel to air			35	$^\circ\text{C}/\text{W}$
	$R_{th(ch-c)}$	channel to case			1,25	$^\circ\text{C}/\text{W}$

# N-channel MOS-FET

250V 0,25Ω 20A 100W

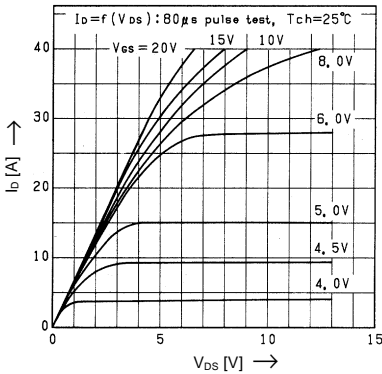
# 2SK1276A

## F-V Series

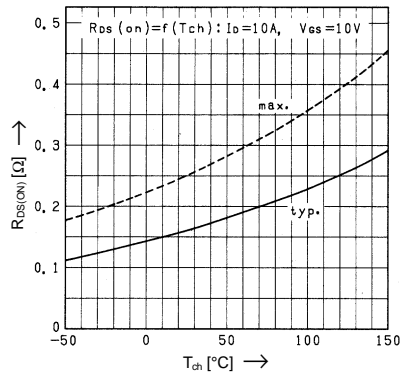


### > Characteristics

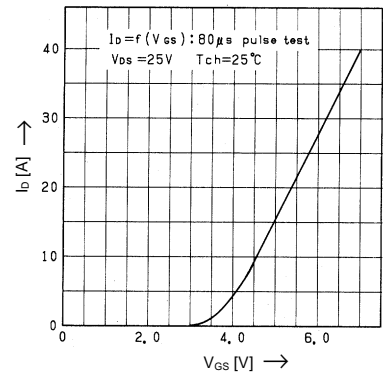
Typical Output Characteristics



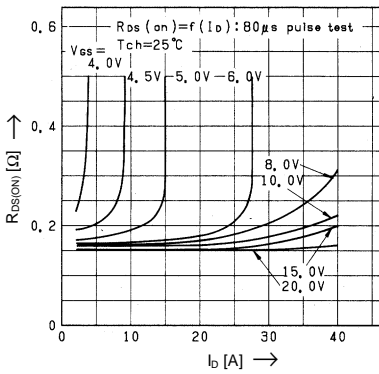
Drain-Source-On-State Resistance vs.  $T_{ch}$



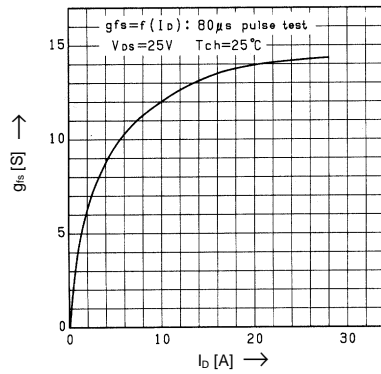
Typical Transfer Characteristics



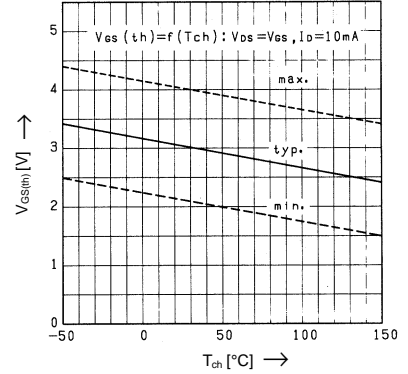
Typical Drain-Source-On-State-Resistance vs.  $I_D$



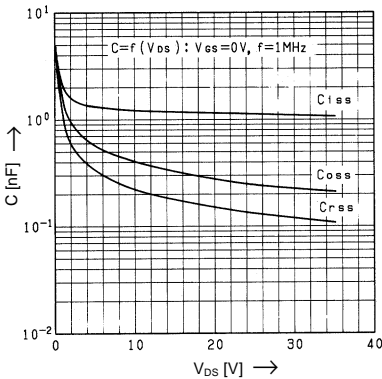
Typical Forward Transconductance vs.  $I_D$



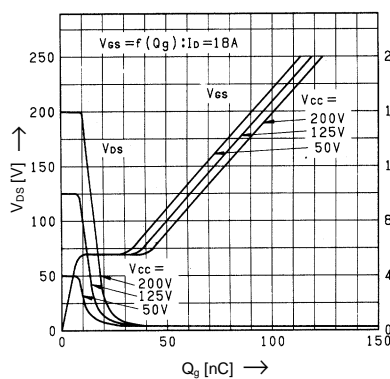
Gate Threshold Voltage vs.  $T_{ch}$



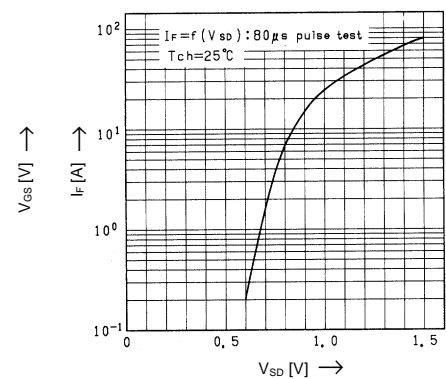
Typical Capacitance vs.  $V_{DS}$



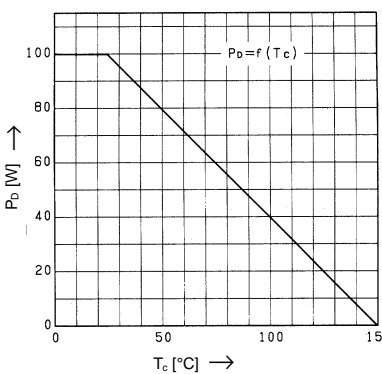
Typical Input Charge



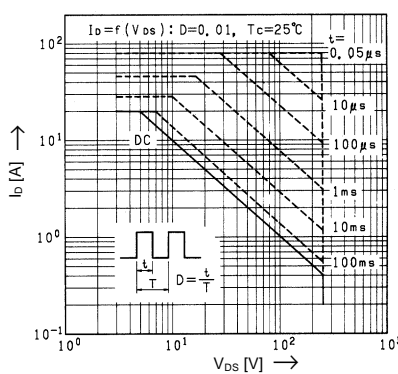
Forward Characteristics of Reverse Diode



Allowable Power Dissipation vs.  $T_c$



Safe operation area



$Z_{th(j-c)}$  [K/W]

Transient Thermal impedance

