

> Features

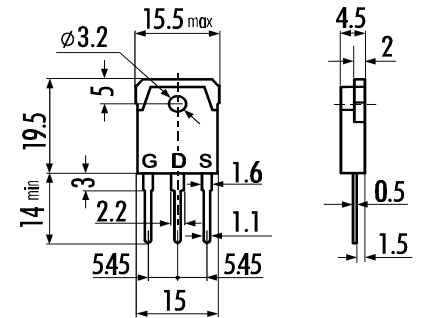
- High Current
- Low On-Resistance
- No Secondary Breakdown
- Low Driving Power
- Avalanche Rated

> Applications

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

> Outline Drawing

TO-3P



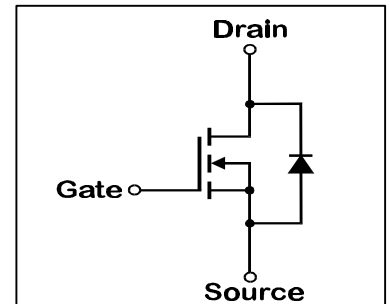
> Maximum Ratings and Characteristics

- 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	±100	A
Pulsed Drain Current	$I_{D(puls)}$	±400	A
Gate-Source-Voltage	V_{GS}	+30 / -20	V
Maximum Avalanche Energy	E_{AV}	490.4	mJ*
Max. Power Dissipation	P_D	155	W
Operating and Storage Temperature Range	T_{ch}	150	$^\circ\text{C}$
	T_{stg}	-55 ~ +150	$^\circ\text{C}$

* $L=0.65\mu\text{H}$, $V_{CC}=24\text{V}$

> 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	BV_{DSS}	$I_D=1\text{mA}$ $V_{GS}=0\text{V}$	60			V
Gate Threshold Voltage	$V_{GS(th)}$	$I_D=10\text{mA}$ $V_{DS}=V_{GS}$	2,5	3,0	3,5	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60\text{V}$ $T_{ch}=25^\circ\text{C}$		1,0	100,0	μA
		$V_{GS}=0\text{V}$ $T_{ch}=125^\circ\text{C}$		10,0	500,0	μA
Gate Source Leakage Current	I_{GSS}	$V_{GS}=\pm 30\text{V}$ $V_{DS}=0\text{V}$		10	100	nA
Drain Source On-State Resistance	$R_{DS(on)}$	$I_D=40\text{A}$ $V_{GS}=40\text{V}$		5,0	6,5	mΩ
Forward Transconductance	g_{fs}	$I_D=40\text{A}$ $V_{DS}=10\text{V}$	25	50		S
Input Capacitance	C_{iss}	$V_{DS}=25\text{V}$		9000		pF
Output Capacitance	C_{oss}	$V_{GS}=0\text{V}$		1250		pF
Reverse Transfer Capacitance	C_{rss}	$f=1\text{MHz}$		700		pF
Turn-On-Time t_{on} ($t_{on}=t_{d(on)}+t_r$)	$t_{d(on)}$	$V_{CC}=30\text{V}$		50		ns
	t_r	$V_{GS}=10\text{V}$		200		ns
Turn-Off-Time t_{off} ($t_{on}=t_{d(off)}+t_f$)	$t_{d(off)}$	$ID=80\text{A}$		150		ns
	t_f	$R_{GS}=10\Omega$		135		ns
Avalanche Capability	I_{AV}	$L=100\mu\text{H}$ $T_{ch}=25^\circ\text{C}$	100			A
Diode Forward On-Voltage	V_{SD}	$I_F=80\text{A}$ $V_{GS}=0\text{V}$ $T_{ch}=25^\circ\text{C}$		1,0	1,5	V
Reverse Recovery Time	t_{rr}	$I_F=50\text{A}$ $V_{GS}=0\text{V}$		85		ns
Reverse Recovery Charge	Q_{rr}	$-dI_F/dt=100\text{A}/\mu\text{s}$ $T_{ch}=25^\circ\text{C}$		0,25		μC

- Thermal Characteristics

Item	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Thermal Resistance	$R_{th(ch-a)}$	channel to ambient			35,0	$^\circ\text{C}/\text{W}$
	$R_{th(ch-c)}$	channel to case			0,806	$^\circ\text{C}/\text{W}$

N-channel MOS-FET			
60V	6,5mΩ	±80A	135W

2SK3271-01

Trench Gate MOSFET



> Characteristics

