

> Features

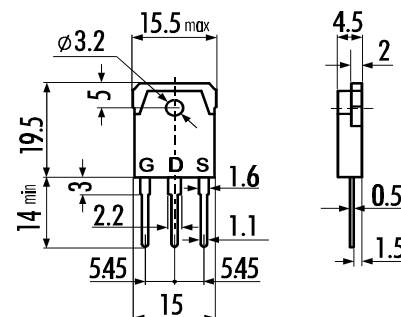
- High Current
- Low On-Resistance
- No Secondary Breakdown
- Low Driving Power
- Avalanche Rated

> Applications

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

> Outline Drawing

TO-3P



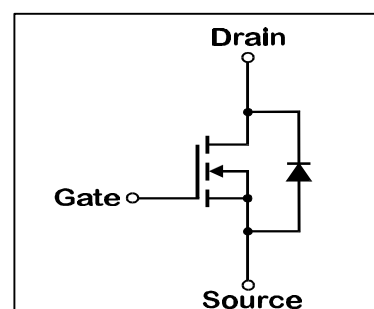
> Maximum Ratings and Characteristics

- Absolute Maximum Ratings (Tc=25°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	°C
	T_{sta}	-55 ~ +150	°C

* $L=0,65.4\mu H$, $V_{CC}=24V$

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

- Thermal Characteristics

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

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

2SK3271-01

Trench Gate MOSFET



> Characteristics

