

2SK2903-01MR

FUJI POWER MOS-FET

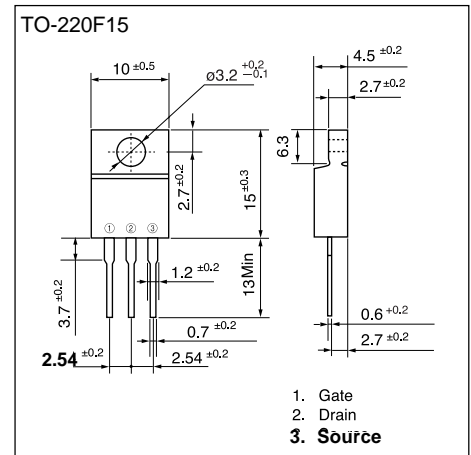
N-CHANNEL SILICON POWER MOS-FET

Features

- High speed switching
- Low on-resistance
- No secondary breakdown
- Low driving power
- Avalanche-proof

Applications

- Switching regulators
- UPS (Uninterruptible Power Supply)
- DC-DC converters



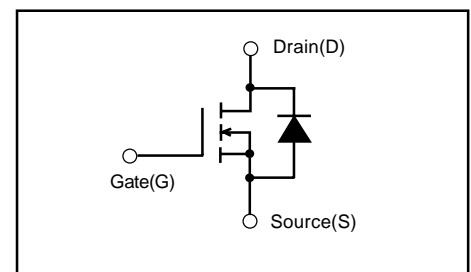
Maximum ratings and characteristic Absolute maximum ratings

($T_c=25^\circ\text{C}$ unless otherwise specified)

Item	Symbol	Rating	Unit
Drain-source voltage	V_{DS}	60	V
Continuous drain current	I_D	± 50	A
Pulsed drain current	$I_{D(puls)}$	± 200	A
Gate-source voltage	V_{GS}	± 30	V
Maximum Avalanche Energy	E_{AV}^*1	720.8	mJ
Max. power dissipation	P_D	50	W
Operating and storage temperature range	T_{ch} T_{stg}	+150 -55 to +150	$^\circ\text{C}$

*1 $L=0.384\text{mH}$, $V_{CC}=24\text{V}$

Equivalent circuit schematic



Electrical characteristics ($T_c=25^\circ\text{C}$ unless otherwise specified)

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units	
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}	$V_{DS}=60\text{V}$ $V_{GS}=0\text{V}$	$T_{ch}=25^\circ\text{C}$		10	500	μA
			$T_{ch}=125^\circ\text{C}$		0.2	1.0	mA
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	$R_{DS(on)}$	$I_D=40\text{A}$ $V_{GS}=10\text{V}$		9.5	12	$\text{m}\Omega$	
Forward transconductance	g_{fs}	$I_D=40\text{A}$ $V_{DS}=25\text{V}$	20	40		S	
Input capacitance	C_{iss}	$V_{DS}=25\text{V}$		3100	4650	pF	
Output capacitance	C_{oss}	$V_{GS}=0\text{V}$		1300	1950	pF	
Reverse transfer capacitance	C_{rss}	$f=1\text{MHz}$		350	530	pF	
Turn-on time t_{on}	$t_{d(on)}$	$V_{CC}=30\text{V}$ $I_D=80\text{A}$ $V_{GS}=10\text{V}$		20	30	ns	
				85	120		
				88	130		
Turn-off time t_{off}	$t_{d(off)}$	$R_{GS}=10\Omega$		65	120	ns	
Avalanche capability	I_{AV}	$L=100\mu\text{H}$ $T_{ch}=25^\circ\text{C}$	50			A	
Diode forward on-voltage	V_{SD}	$I_F=50\text{A}$ $V_{GS}=0\text{V}$ $T_{ch}=25^\circ\text{C}$		1.0	1.5	V	
Reverse recovery time	t_{rr}	$I_F=50\text{A}$ $V_{GS}=0\text{V}$		70		ns	
Reverse recovery charge	Q_{rr}	$-di/dt=100\text{A}/\mu\text{s}$ $T_{ch}=25^\circ\text{C}$		0.13		μC	

Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	$R_{th(ch-c)}$	channel to case			2.5	$^\circ\text{C}/\text{W}$
	$R_{th(ch-a)}$	channel to ambient			62.5	$^\circ\text{C}/\text{W}$

Characteristics

