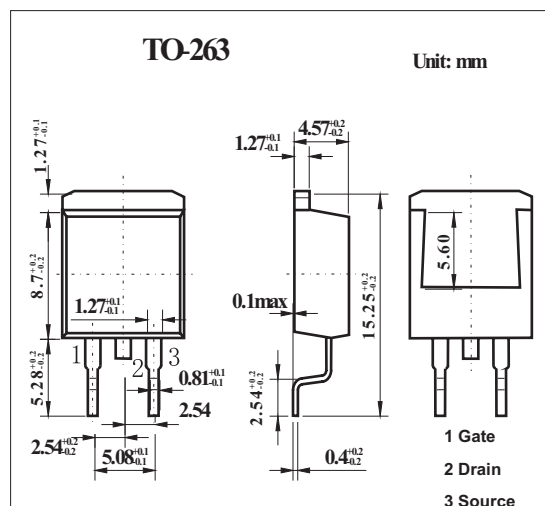


N-channel Enhancement Mode MOSFET

2SK3652

■ Features

- Low on-resistance, low Qg
- High avalanche resistance
- For high-speed switching

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Drain-source surrender voltage	V_{DS}	230	V
Gate-source surrender voltage	V_{GS}	± 30	V
Drain current	I_D	50	A
Peak drain current	I_{DP}	200	A
Avalanche energy capability *	EAS	2 200	mJ
Power dissipation $T_a = 25^\circ\text{C}$	P_D	3	W
Power dissipation		100	
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

* $L = 1\text{ mH}$, $I_L = 50\text{ A}$, $V_{DD} = 100\text{ V}$, 1 pulse, $T_a = 25^\circ\text{C}$

2SK3652

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Gate-drain surrender voltage	V_{DSS}	$I_D = 1 \text{ mA}$, $V_{GS} = 0$	230			V
Gate threshold voltage	V_{th}	$V_{DS} = 25 \text{ V}$, $I_D = 10 \text{ mA}$	2		4	V
Drain-source cutoff current	I_{DSS}	$V_{DS} = 184 \text{ V}$, $V_{GS} = 0$			100	μA
Gate-source cutoff current	I_{GSS}	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0$			± 1	μA
Drain-source on resistance	$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 25 \text{ A}$		29	40	$\text{m}\Omega$
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 25 \text{ V}$, $I_D = 25 \text{ A}$	17	35		S
Short-circuit forward transfer capacitance	C_{iss}	$V_{DS} = 25 \text{ V}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$		5 950		pF
Short-circuit output capacitance	C_{oss}			850		pF
Reverse transfer capacitance	C_{rss}			80		pF
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 100 \text{ V}$, $I_D = 25 \text{ A}$, $R_L = 4 \Omega$, $V_{GS} = 10 \text{ V}$		65		ns
Rise time	t_r			140		ns
Turn-off delay time	$t_{d(off)}$			470		ns
Fall time	t_f			145		ns
Diode forward voltage	V_{DSF}	$I_{DR} = 50 \text{ A}$, $V_{GS} = 0$			-1.5	V
Reverse recovery time	t_{rr}	$L = 230 \mu\text{H}$, $V_{DD} = 100 \text{ V}$		235		ns
Reverse recovery charge	Q_{rr}	$I_{DR} = 25 \text{ A}$, $di/dt = 100 \text{ A}/\mu\text{s}$		1 180		nC
Total gate charge	Q_g	$V_{DD} = 100 \text{ V}$, $I_D = 25 \text{ A}$, $V_{GS} = 10 \text{ V}$		105		nC
Gate-source charge	Q_{gs}			40		nC
Gate-drain charge	Q_{gd}			14		nC
Channel-case heat resistance	$R_{th(ch-c)}$				1.25	$^{\circ}\text{C}/\text{W}$
Channel-atmosphere heat resistance	$R_{th(ch-a)}$				41.6	$^{\circ}\text{C}/\text{W}$