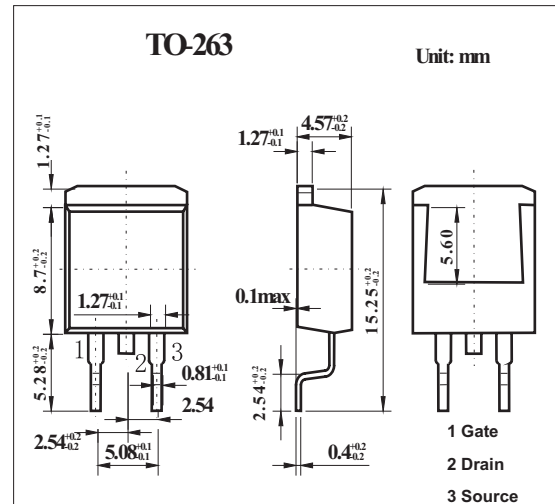


## N-channel Enhancement Mode MOSFET

## 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	$V_{bss}$	230	V
Gate-source surrender voltage	$V_{gss}$	$\pm 30$	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	Testconditons	Min	Typ	Max	Unit
Gate-drain surrender voltage	V <sub>DSS</sub>	I <sub>D</sub> = 1 mA, V <sub>GS</sub> = 0	230			V
Gate threshold voltage	V <sub>th</sub>	V <sub>DS</sub> = 25 V, I <sub>D</sub> = 10 mA	2		4	V
Drain-source cutoff current	I <sub>DSS</sub>	V <sub>DS</sub> = 184 V, V <sub>GS</sub> = 0			100	μA
Gate-source cutoff currentt	I <sub>GSS</sub>	V <sub>GS</sub> = ±30 V, V <sub>DS</sub> = 0			±1	μA
Drain-source on resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 25 A		29	40	mΩ
Forward transfer admittance	Y <sub>fs</sub>	V <sub>DS</sub> = 25 V, I <sub>D</sub> = 25 A	17	35		S
Short-circuit forward transfer capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 25 V, V <sub>GS</sub> = 0, f = 1 MHz		5 950		pF
Short-circuit output capacitance	C <sub>oss</sub>			850		pF
Reverse transfer capacitance	C <sub>rss</sub>			80		pF
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> = 100 V, I <sub>D</sub> = 25 A, R <sub>L</sub> = 4 Ω, V <sub>GS</sub> = 10 V		65		ns
Rise time	t <sub>r</sub>			140		ns
Turn-off delay time	t <sub>d(off)</sub>			470		ns
Fall time	t <sub>f</sub>			145		ns
Diode foward voltage	V <sub>DSF</sub>	I <sub>DR</sub> = 50 A, V <sub>GS</sub> = 0			-1.5	V
Reverse recovery time	t <sub>rr</sub>	L = 230 μH, V <sub>DD</sub> = 100 V		235		ns
Reverse recovery charge	Q <sub>rr</sub>	I <sub>DR</sub> = 25 A, di/dt = 100 A/μs		1 180		nC
Total gate charge	Q <sub>g</sub>	V <sub>DD</sub> = 100 V, I <sub>D</sub> = 25 A, V <sub>GS</sub> = 10 V		105		nC
Gate-source charge	Q <sub>gs</sub>			40		nC
Gate-drain charge	Q <sub>gd</sub>			14		nC
Channel-case heat resistance	R <sub>th(ch-c)</sub>				1.25	°C/W
Channel-atmosphere heat resistance	R <sub>th(ch-a)</sub>				41.6	°C/W