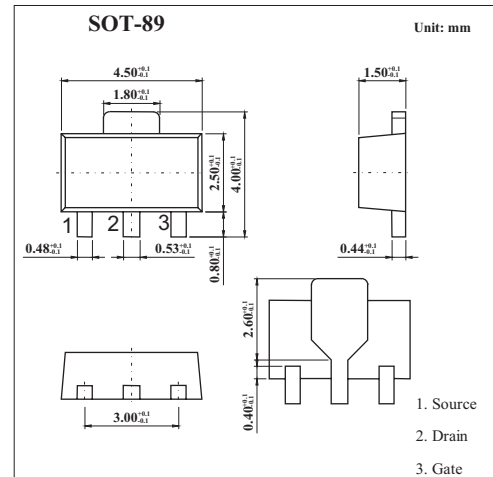
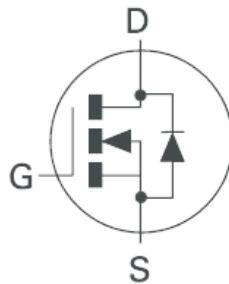


## 250V N-Channel Enhancement Mode MOSFET

## KVN4525Z

## ■ Features

- High voltage
- Low on-resistance
- Fast switching speed
- Low gate drive
- Low threshold
- SOT89 package

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DSS}$	250	V
Gate Source Voltage	$V_{GS}$	$\pm 40$	V
Continuous Drain Current ( $V_{GS}=10\text{V}$ ; $T_A=25^\circ\text{C}$ )*1 ( $V_{GS}=10\text{V}$ ; $T_A=70^\circ\text{C}$ )*1	$I_D$	240	mA
	$I_D$	192	mA
Pulsed Drain Current *3	$I_{DM}$	1.44	A
Continuous Source Current (Body Diode)	$I_S$	1.1	A
Pulsed Source Current (Body Diode)	$I_{SM}$	1.44	A
Power Dissipation at $T_A=25^\circ\text{C}$ *1	$P_D$	1.2	W
Linear Derating Factor		9.6	mW/ $^\circ\text{C}$
Operating and Storage Temperature Range	$T_j$ ; $T_{stg}$	-55 to +150	$^\circ\text{C}$
Junction to Ambient *1	$R_{\theta JA}$	103	$^\circ\text{C}/\text{W}$
Junction to Ambient*2	$R_{\theta JA}$	50	$^\circ\text{C}/\text{W}$

\*1 For a device surface mounted on 25mm X 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions

\*2 For a device surface mounted on FR4 PCB measured at  $t \leq 5$  secs.

\*3 Repetitive rating - pulse width limited by maximum junction temperature. Refer to Transient Thermal Impedance graph.

## KVN4525Z

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0V$	250	285		V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=250V, V_{GS}=0V$		35	500	nA
Gate-Body Leakage	$I_{GSS}$	$V_{GS}=\pm 40V, V_{DS}=0V$		$\pm 1$	$\pm 100$	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	$I_D=1mA, V_{DS}=V_{GS}$	0.8	1.4	1.8	V
Static Drain-Source On-State Resistance *1	$R_{DS(on)}$	$V_{GS}=10V, I_D=500mA$		5.6	8.5	$\Omega$
		$V_{GS}=4.5V, I_D=360mA$		5.9	9.0	$\Omega$
		$V_{GS}=2.4V, I_D=20mA$		6.4	9.5	$\Omega$
Forward Transconductance *3	$g_{fs}$	$V_{DS}=10V, I_D=0.3A$	0.3	475		ms
Input Capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		72		pF
Output Capacitance	$C_{oss}$			11		pF
Reverse Transfer Capacitance	$C_{rss}$			3.6		pF
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=50V, I_D=-200mA$ $R_G=6.0\Omega, R_D=4.4\Omega$ *2,3		1.25		ns
Rise Time	$t_r$			1.70		ns
Turn-Off Delay Time	$t_{d(off)}$			11.40		ns
Fall Time	$t_f$			3.5		ns
Total Gate Charge	$Q_g$				2.6	3.65
Gate-Source Charge	$Q_{gs}$	$V_{DS}=25V, V_{GS}=10V, I_D=360mA$ *2,3		0.2	0.28	nC
Gate Drain Charge	$Q_{gd}$			0.5	0.70	nC
Diode Forward Voltage *1	$V_{SD}$	$T_j=25^\circ C, I_S=360mA, V_{GS}=0V$			0.97	V
Reverse Recovery Time *3	$t_{rr}$	$T_j=25^\circ C, I_F=360mA,$ $di/dt=100A/\mu s$		186	260	ns
Reverse Recovery Charge *3	$Q_{rr}$			34	48	nC

\*1 Measured under pulsed conditions. Width=300  $\mu$  s. Duty cycle  $\leq$  2% .

\*2 Switching characteristics are independent of operating junction temperature.

\*3 For design aid only, not subject to production testing.

## ■ Marking

Marking	N52
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