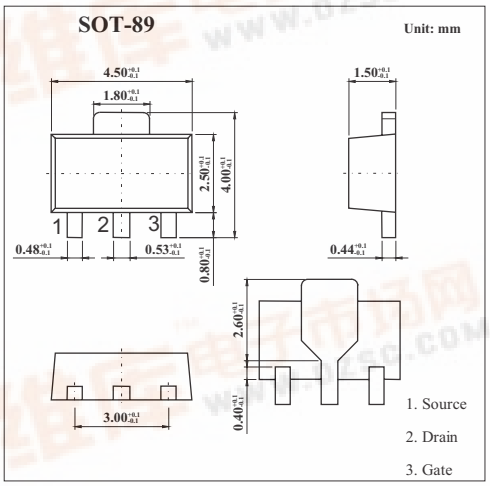
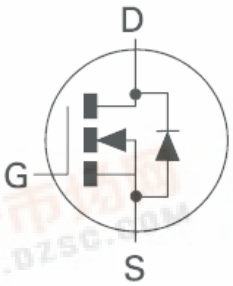
250V N-Channel Enhancement Mode MOSFET

KVN4525Z

■ Features

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





■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	250	V
Gate Source Voltage	V_{GS}	±40	V
Continuous Drain Current (V_{GS}=10V; T_A=25℃)*1	I_D	240	mA
(V_{GS}=10V; T_A=70℃)*1	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℃ *1	P_D	1.2	W
Linear Derating Factor		9.6	mW/℃
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +150	℃
Junction to Ambient *1	$R_{\theta JA}$	103	℃/W
Junction to Ambient*2	$R_{\theta JA}$	50	℃/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≤5 secs.

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

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	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}=±40V, V_{DS}=0V		±1	±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	Ω
		V_{GS}=4.5V, I_D=360mA		5.9	9.0	Ω
		V_{GS}=2.4V, I_D=20mA		6.4	9.5	Ω
Forward Transconductance *3	g_{fs}	V_{DS}=10V,I_D=0.3A	0.3	475		ms
Input Capacitance	C_{iss}	V_{DS}=25 V, 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		1.25		ns
Rise Time	t_r	R_G=6.0Ω, R_D=4.4Ω *2,3		1.70		ns
Turn-Off Delay Time	$t_{d(off)}$			11.40		ns
Fall Time	tf			3.5		ns
Total Gate Charge	Q_g	V_{DS}=25V,V_{GS}=10V,I_D=360mA *2,3		2.6	3.65	nC
Gate-Source Charge	Q_{gs}			0.2	0.28	nC
Gate Drain Charge	Q_{gd}			0.5	0.70	nC
Diode Forward Voltage *1	V_{SD}	T_j=25℃, I_S=360mA,V_{GS}=0V			0.97	V
Reverse Recovery Time *3	t_{rr}	T_j=25℃, I_F=360mA,		186	260	ns
Reverse Recovery Charge *3	Q_{rr}	di/dt=100A/μs		34	48	nC

*1 Measured under pulsed conditions. Width=300μs. Duty cycle ≤ 2% .

*2 Switching characteristics are independent of operating junction temperature.

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

■ Marking

Marking	N52