KJ25N15K

N-Channel Enhancement Mode MOSFET

1. Product Information

Features

- Advanced trench technology
- Extremely low $R_{DS(ON)}$
- Low gate charge

Applications

- Battery protection
- Load switch
- Uninterruptible power supply

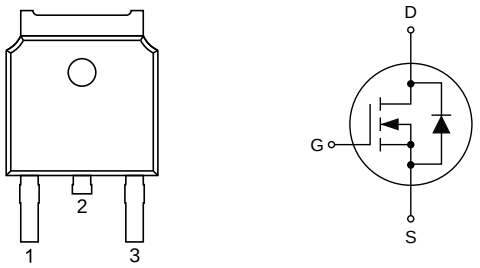
Quick reference

- V_{DS} = 150V
- I_D ≤ 25A
- $R_{DS(ON)}$ ≤ 55mΩ @V_{GS}=10V

Pin Description

Pin	Description
1	Gate(G)
2	Drain(D)
3	Source(S)

Simplified Outline **Symbol**



TOP VIEW
TO-252

Package Marking and Ordering Information

Product Name	Package	Marking	Reel size	Tape width	Quantity
KJ25N15K	TO-252	KJ25N15K XXXXXX	16mm	13 inch	5000

2. Absolute Maximum Ratings (T_C=25℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-to-Source Voltage		V_{DS}	150	V
Gate-to-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	25	A
	T_C=100°C		16	
Pulsed Drain Current		I_{DM}	75	A
Avalanche Energy, L=0.5mH, V_{GS}=10V, V_{DS}=75V		E_{AS}	25	mJ
Power Dissipation		P_D	62.5	W
Junction & Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C
Thermal Resistance, Junction to Ambient		$R_{\theta JA}$	55	°C/W
Thermal Resistance, Junction to Case		$R_{\theta JC}$	2	°C/W

3. Electrical Characteristics (T_C=25℃, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
STATIC PARAMETERS						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=250μA, V_{GS}=0V	150			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=120V, V_{GS}=0V			1	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2.5	3.2	4.5	V
Static Drain-Source ON-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=10A		42	55	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=10A		22		S
Diode Forward Voltage	V_{SD}	I_S=1A, V_{GS}=0V		0.75	1	V
DYNAMIC PARAMETERS						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=75V, f=1MHz		740		pF
Output Capacitance	C_{oss}			68		pF
Reverse Transfer Capacitance	C_{rss}			5		pF
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz		1.1		Ω
SWITCHING PARAMETERS						
Total Gate Charge	Q_g	V_{GS}=0 to 10V V_{DS}=75V, I_D=10A		7.8		nC
Gate Source Charge	Q_{gs}			2.8		nC
Gate Drain Charge	Q_{gd}			3		nC
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V, V_{DS}=75V R_L=7.5Ω, R_{GEN}=6Ω		11		ns
Turn-On Rise Time	t_r			18		ns
Turn-Off Delay Time	$t_{d(off)}$			20		ns
Turn-Off Fall Time	t_f			6.2		ns
Body Diode Reverse Recovery Time	t_{rr}	I_F=10A, $d_{IF/dt}$=100A/μs		66		ns
Body Diode Reverse Recovery Charge	Q_{rr}	I_F=10A, $d_{IF/dt}$=100A/μs		98		nC

4.Typical Characteristics

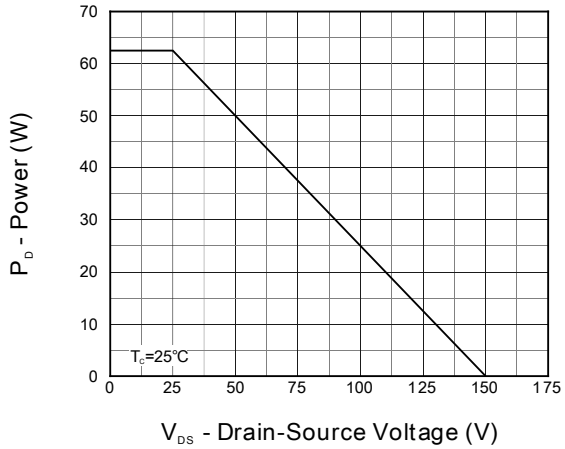


Figure 1. Output Characteristics

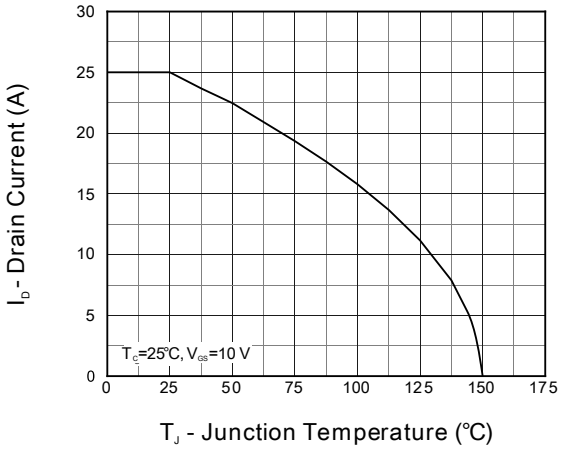


Figure 2. Current Capability

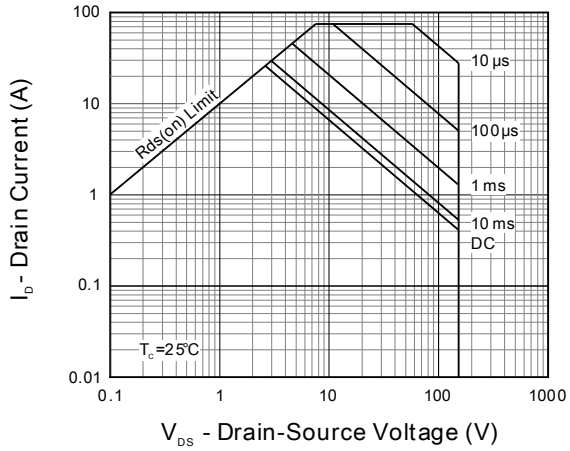


Figure 3. Safe Operation Area

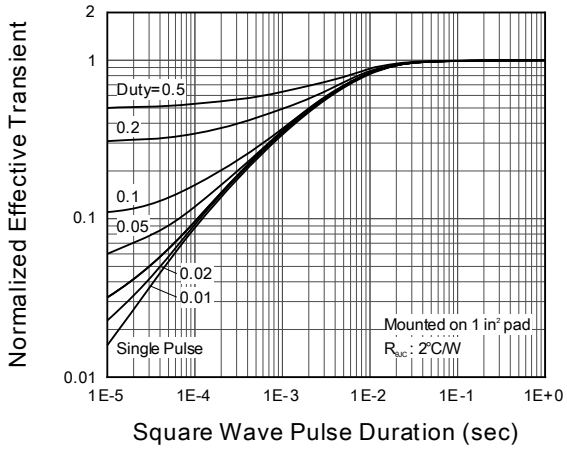


Figure 4. Transient Thermal Impedance

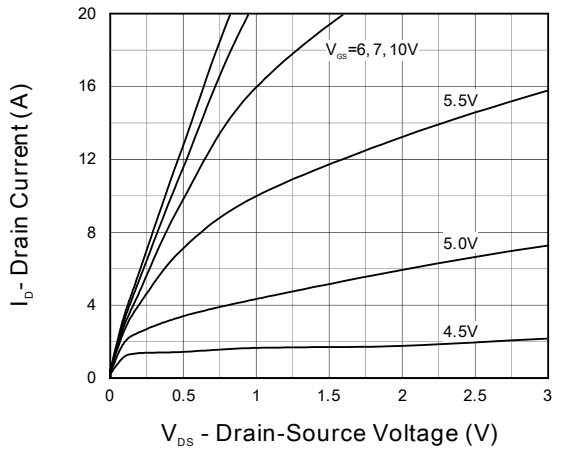


Figure 5. Output Characteristics

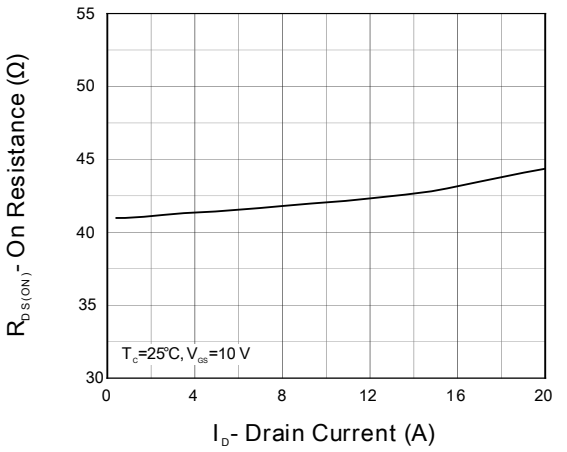


Figure 6. $R_{DS(ON)}$ vs. I_D

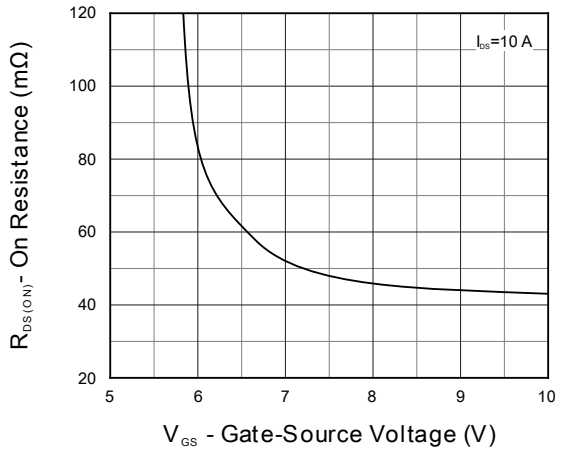


Figure 7. Transfer Characteristics

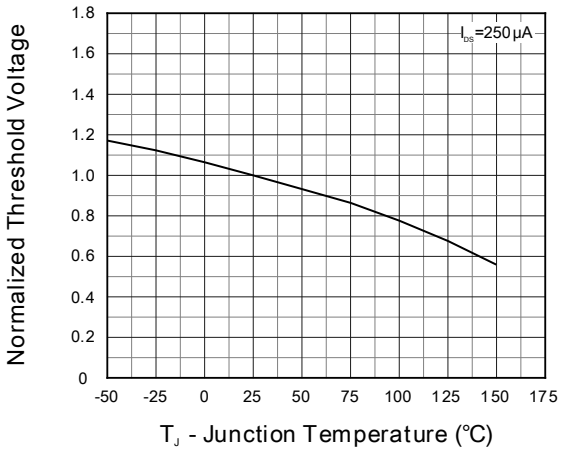


Figure 8. Normalized Threshold Voltage

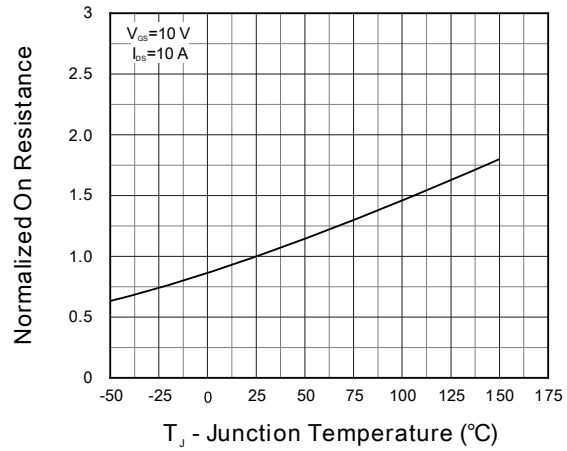


Figure 9. Normalized On Resistance

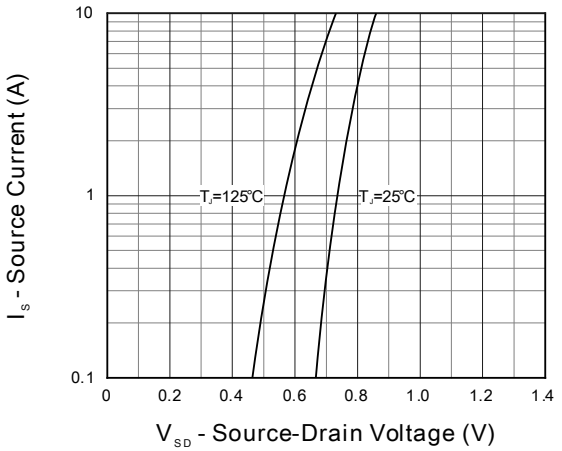


Figure 10. Diode Forward Current

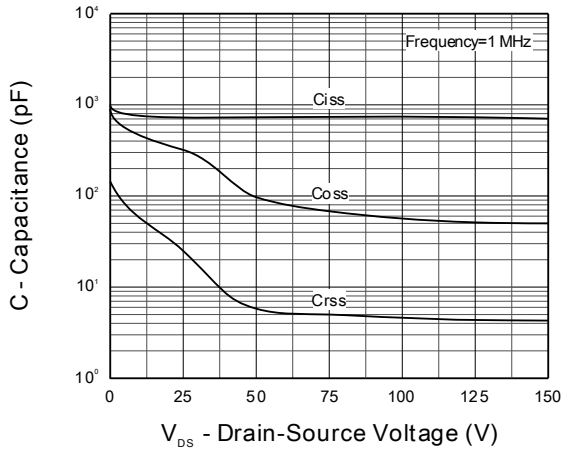


Figure 11. Capacitance

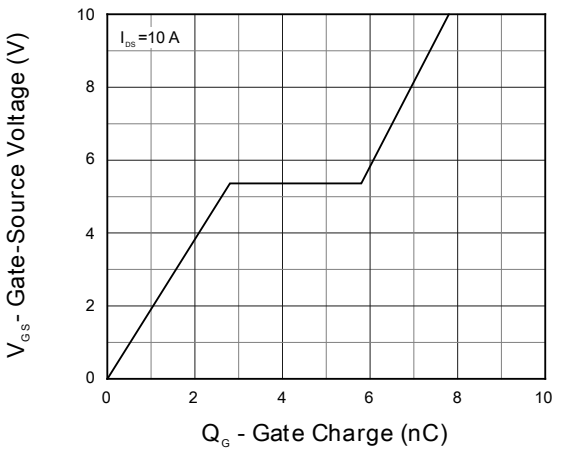
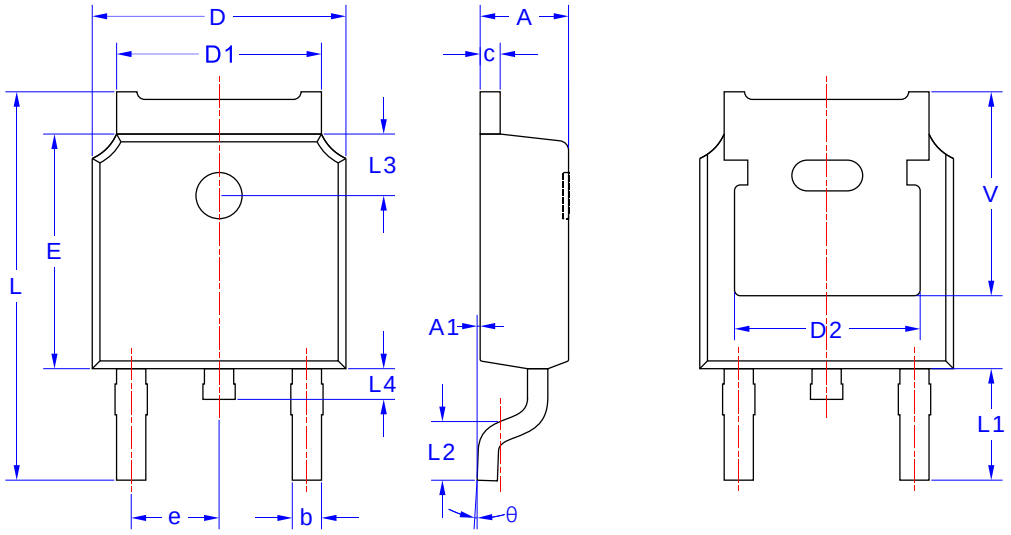


Figure 12. Gate Charge

5. Package Mechanical Data

TO-252 Package



Symbol	Dimensions in Millimeters	
	MIN	MAX
A	2.200	2.400
A1	0	0.127
b	0.660	0.860
c	0.460	0.580
D	6.500	6.700
D1	5.100	5.460
D2	4.830 REF.	
E	6.000	6.200
e	2.186	2.386
L	9.800	10.400
L1	2.900 REF.	
L2	1.400	1.700
L3	1.800 REF.	
L4	0.600	1.000
θ	0°	8°
V	5.600 REF.	