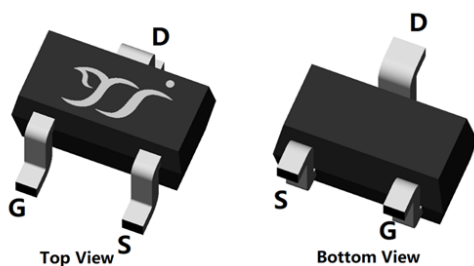
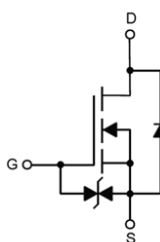


## N-Channel Enhancement Mode Field Effect Transistor



**SOT-523**



### Product Summary

- $V_{DS}$  30 V
- $I_D$  150mA
- $R_{DS(ON)}$ ( at  $V_{GS}=10V$ )  $< 2.5\Omega$
- $R_{DS(ON)}$ ( at  $V_{GS}=4.5V$ )  $< 3\Omega$

### General Description

- Trench Power LV MOSFET technology
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

### Applications

- Power management
- Portable equipment

### ■ Absolute Maximum Ratings ( $T_A=25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit	
Drain-source Voltage	$V_{DS}$	30	V	
Gate-source Voltage	$V_{GS}$	$\pm 20$	V	
Drain Current	$I_D$	$T_A=25$	150	mA
		$T_A=100$	95	
Pulsed Drain Current <sup>A</sup>	$I_{DM}$	800	mA	
Total Power Dissipation <sup>B</sup>	$P_D$	$T_A=25$	205	mW
		$T_A=100$	80	
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~+150		

### ■ Thermal resistance

Parameter	Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient <sup>C</sup>	$R_{\theta JA}$	500	600	$^{\circ}C/W$

### ■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
2SK3019KEJ	F2	KN	3000	30000	120000	7" reel



■



## ■ Typical Electrical and Thermal Characteristics Diagrams

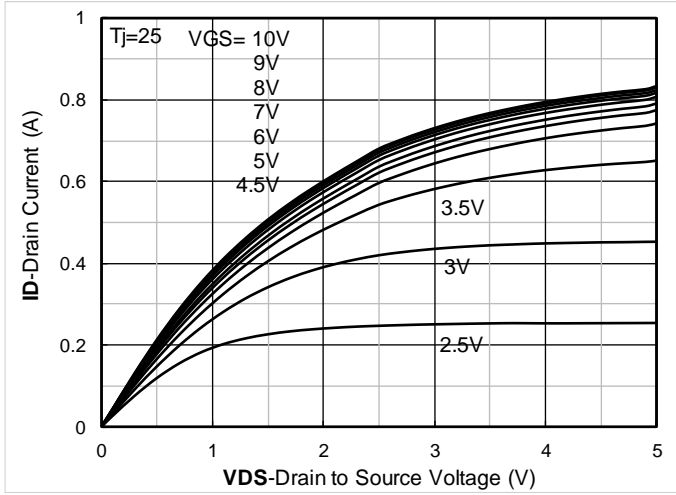


Figure 1. Output Characteristics

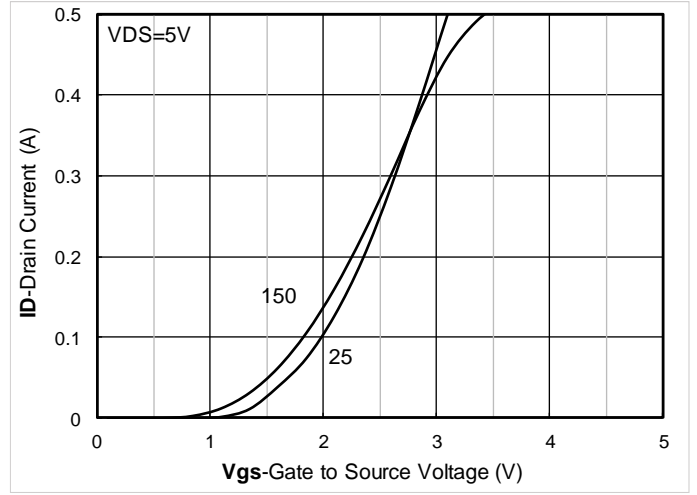


Figure 2. Transfer Characteristics

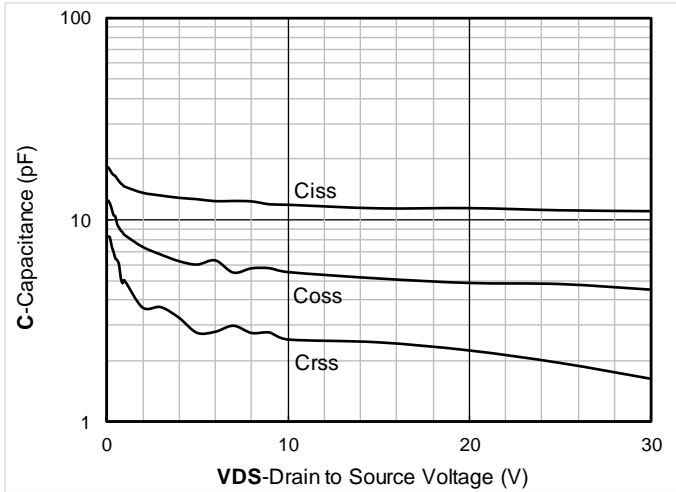


Figure 3. Capacitance Characteristics

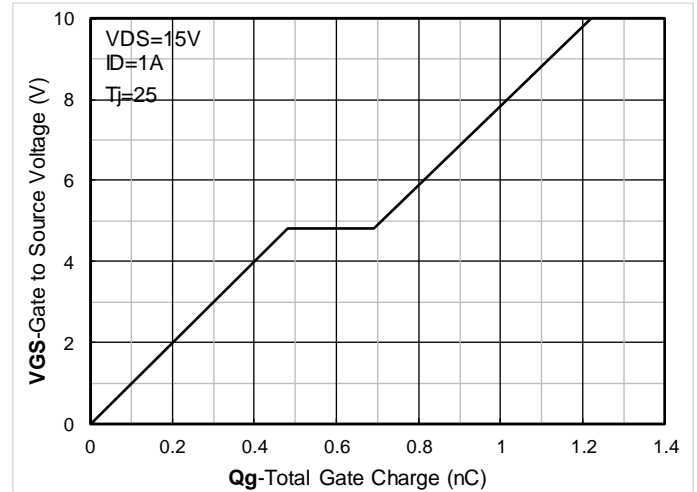


Figure 4. Gate Charge

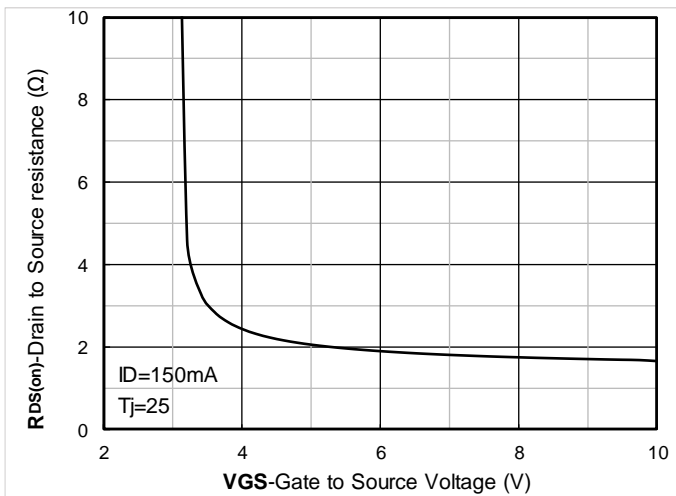


Figure 5. On-Resistance vs Gate to Source Voltage

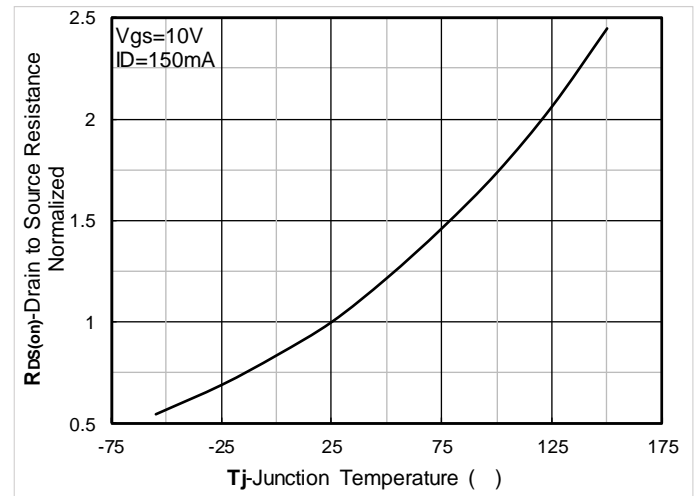


Figure 6. Normalized On-Resistance



# 2SK3019KEJ

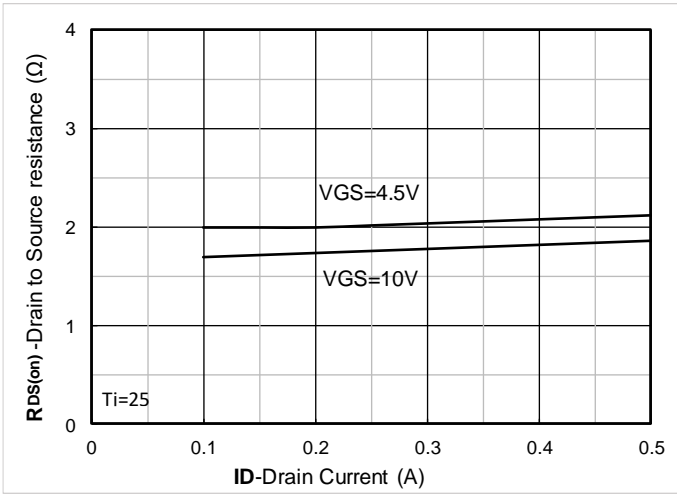


Figure 7.  $R_{DS(on)}$  VS Drain Current

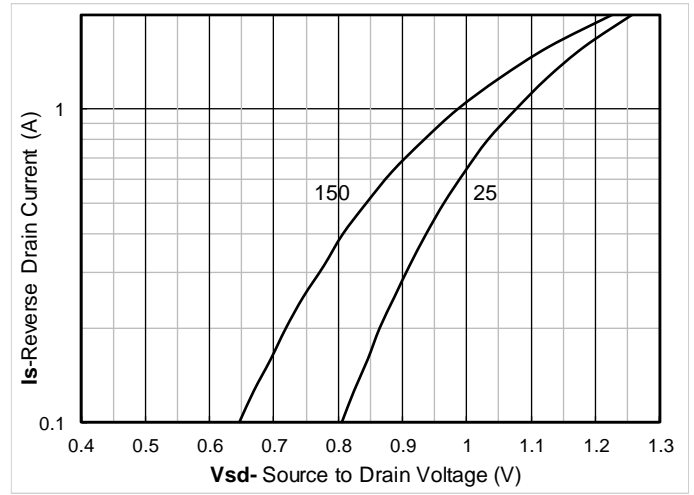


Figure 8. Forward characteristics of reverse diode

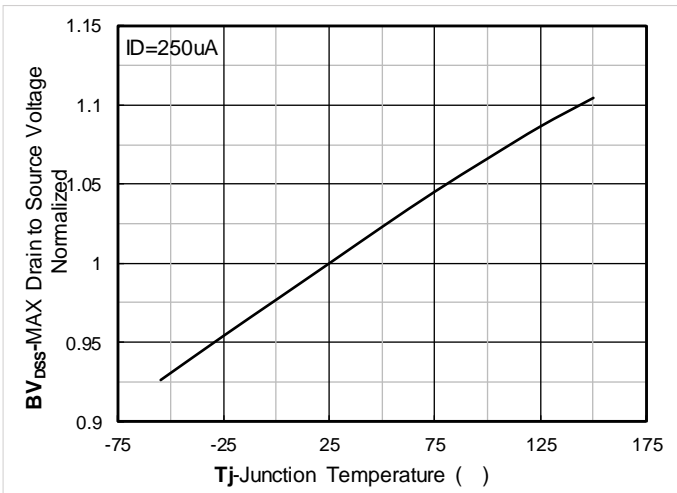


Figure 9. Normalized breakdown voltage

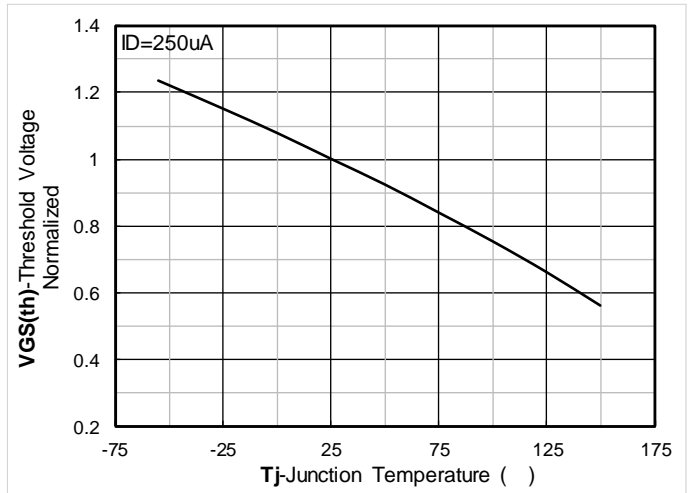


Figure 10. Normalized Threshold voltage

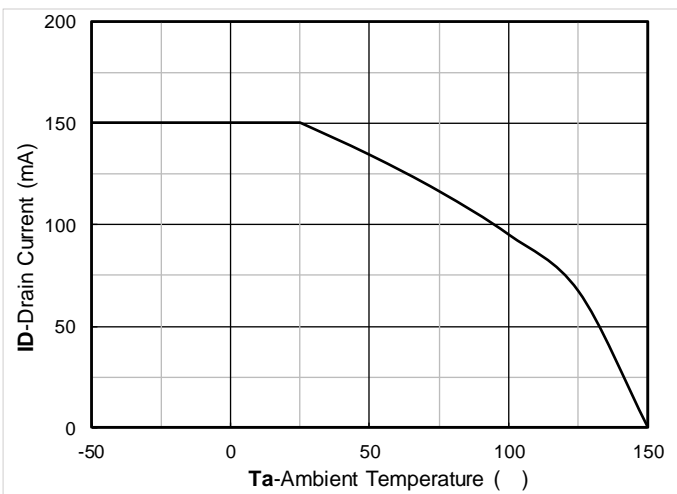


Figure 11. Current dissipation

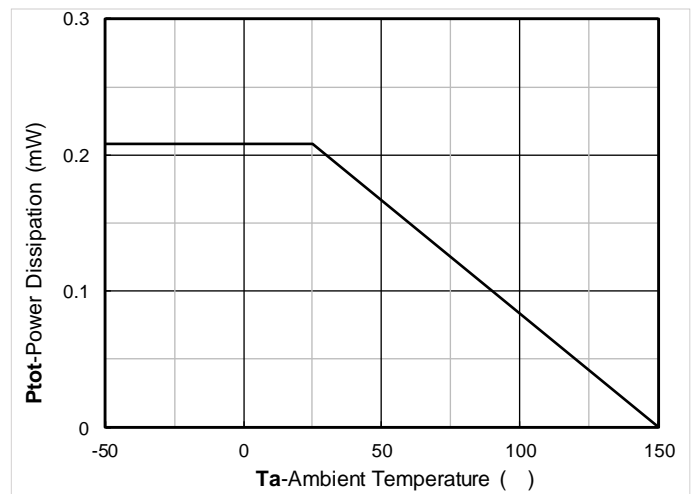


Figure 12. Power dissipation

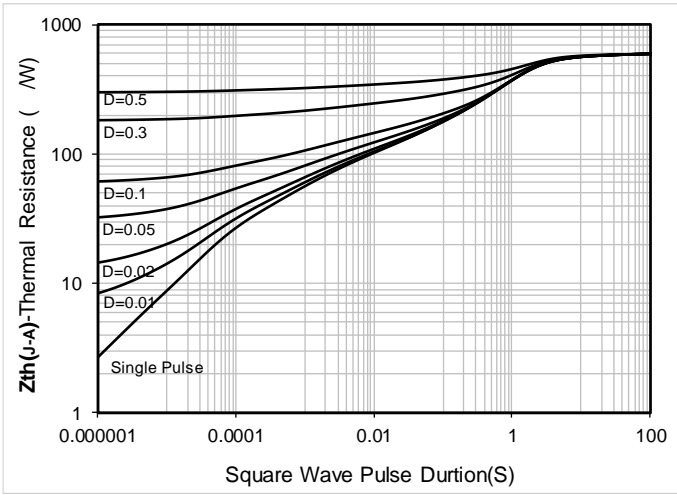


Figure 13. Maximum Transient Thermal Impedance

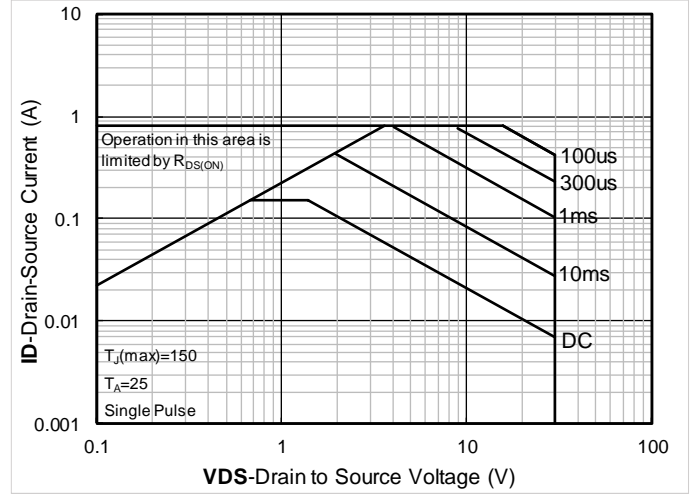


Figure 14. Safe Operation Area

## ■ Test Circuits & Waveforms

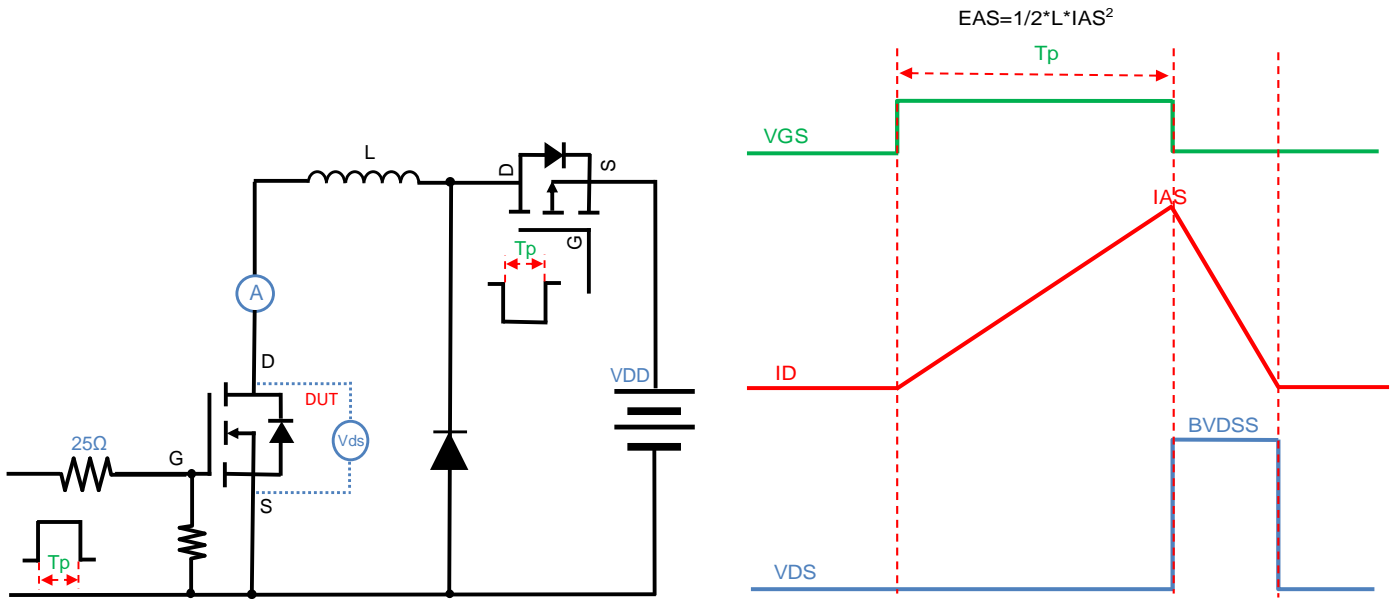


Figure A. Unclamped Inductive Switching (UIS) Test Circuit & Waveform



Figure B. Gate Charge Test Circuit & Waveform

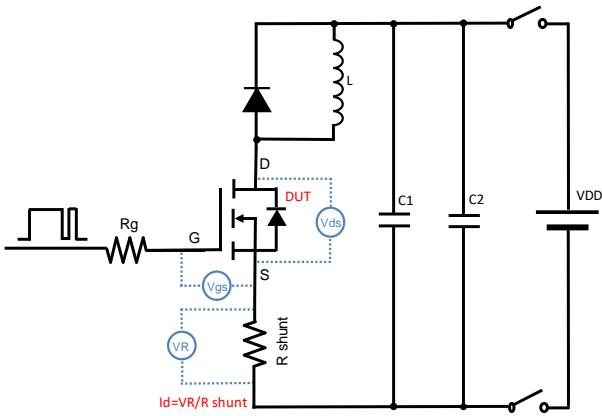
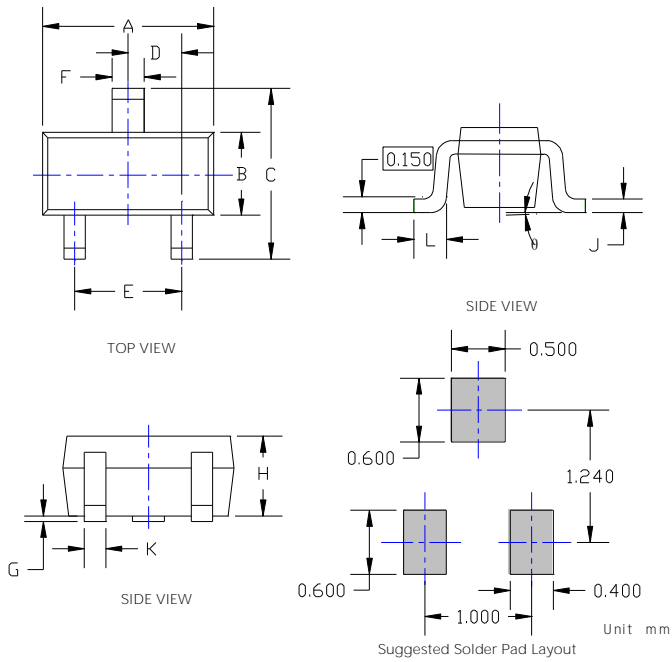


Figure C. Resistive Switching Test Circuit & Waveform



Figure D. Diode Recovery Test Circuit & Waveform

## ■ SOT-523 Package information



SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.059	0.067	1.500	1.700
B	0.030	0.033	0.750	0.850
C	0.057	0.069	1.450	1.750
D	0.020TYP		0.500TYP	
E	0.035	0.043	0.900	1.100
F	0.010	0.018	0.250	0.450
G	0.000	0.004	0.000	0.100
H	0.024	0.031	0.600	0.800
J	0.004	0.008	0.100	0.200
K	0.006	0.014	0.150	0.350
L	0.010	0.018	0.260	0.460
$\theta$	0°	8°	0°	8°

**NOTE:**  
 1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.  
 2. TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.  
 3. THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.



## 2SK3019KEJ

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