

2N7002K规格书 V1.0

N-Channel Trench Power MOSFET

ZLW-QW-EN-G131



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Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	$2\Omega@10V$	340mA
	$2.7\Omega@4.5V$	

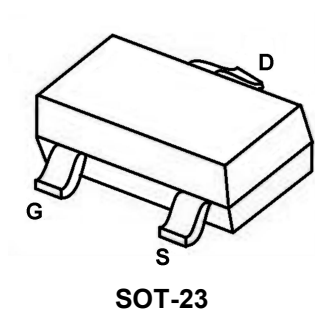
Feature

- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- Capable doing Cu wire bonding
- ESD protected Gate HBM 2KV

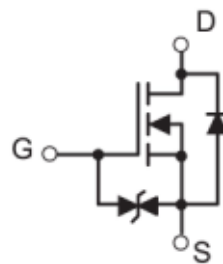
Application

- Power Management in Note book
- Portable Equipment
- Battery Powered System

Package:



Circuit diagram



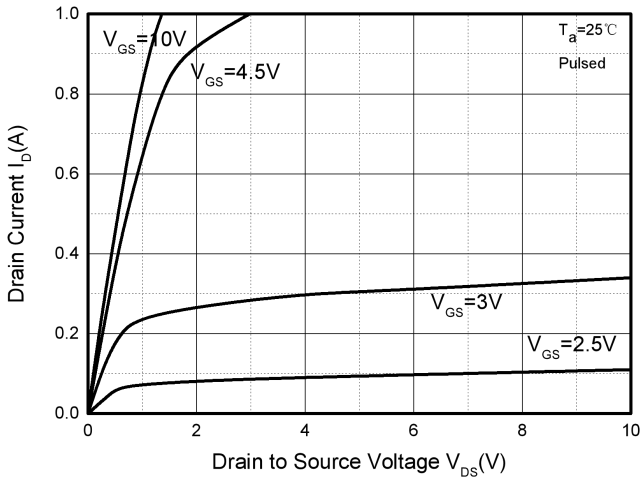
Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	340	mA
Power Dissipation	P_D	0.35	W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55~ +150	°C

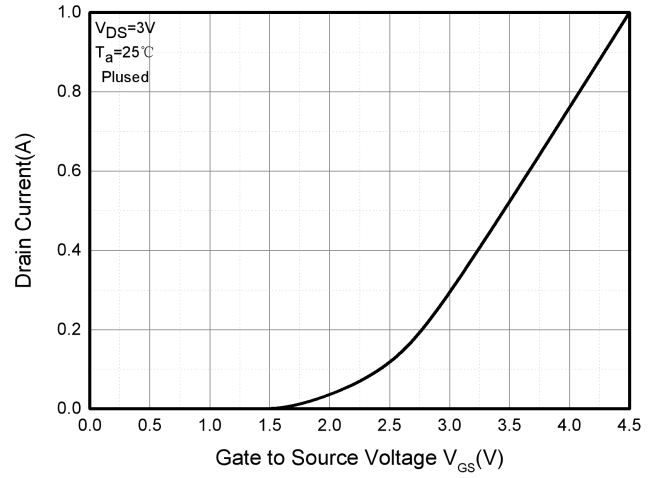
Electrical characteristics (Ta=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	60			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.5	2.5	V
Gate-Body Leakage	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±10	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	μA
Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =500mA		1.1	2	Ω
		V _{GS} =4.5V, I _D =200mA		1.2	2.7	
Dynamic characteristics						
Total Gate Charge	Qg	V _{DS} =10V, V _{GS} =4.5V, I _D =250mA		0.3		nC
Gate-Source Charge	Qgs			0.2		
Gate-Drain Charge	Qgd			0.08		
Input Capacitance	Ciss	V _{DS} =25V, V _{GS} =0V, f=1MHz		30	50	pF
Output Capacitance	Coss			4.2	25	
Reverse Transfer Capacitance	Crss			2.9	5	
Switching Characteristics						
Turn-On Delay Time	td(on)	V _{DD} =30V, I _D =200mA, V _{GEN} =10V, R _G =25Ω		3.9		ns
Turn-On Rise Time	t _R			3.4		
Turn-Off Delay Time	td(off)			15.7		
Turn-Off Fall Time	t _F			9.9		
Source-Drain Diode characteristics						
Diode Forward Voltage	V _{SD}	I _S =200mA, V _{GS} =0V		0.82	1.3	V

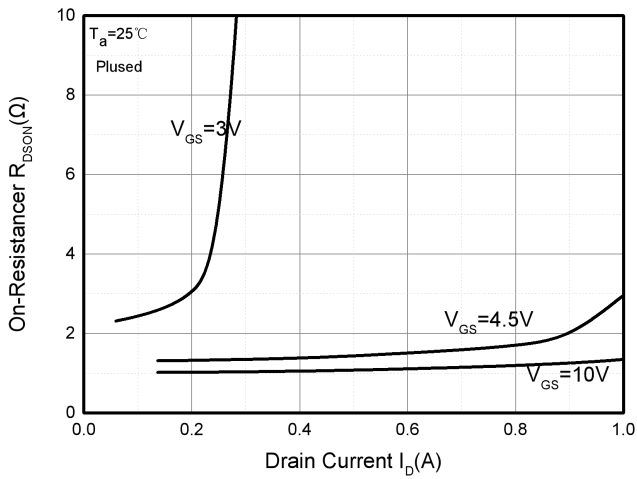
Typical Characteristics



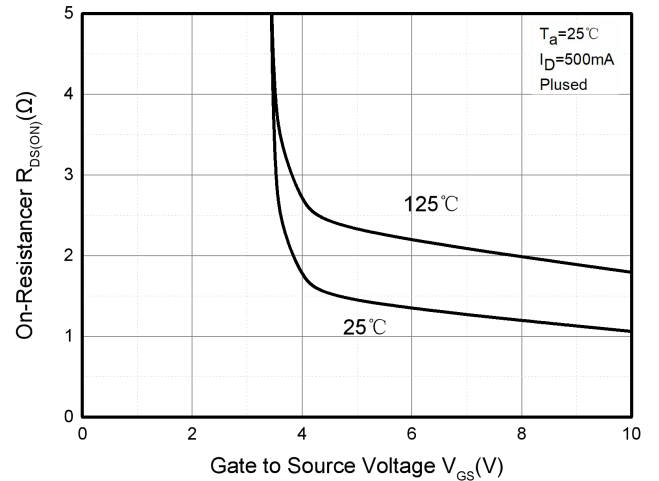
Output Characteristics



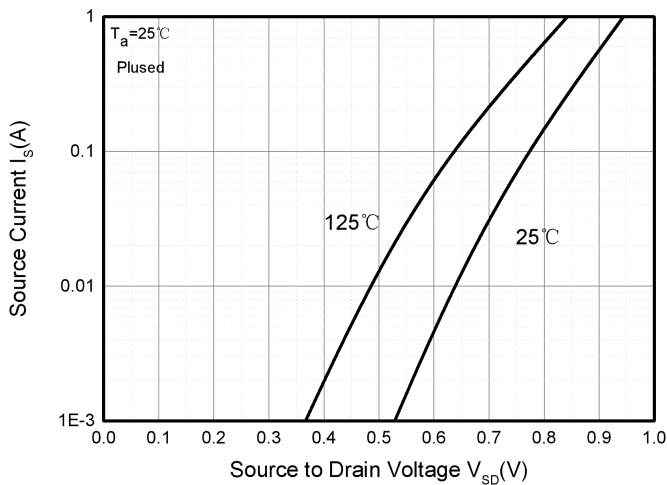
Transfer Characteristics



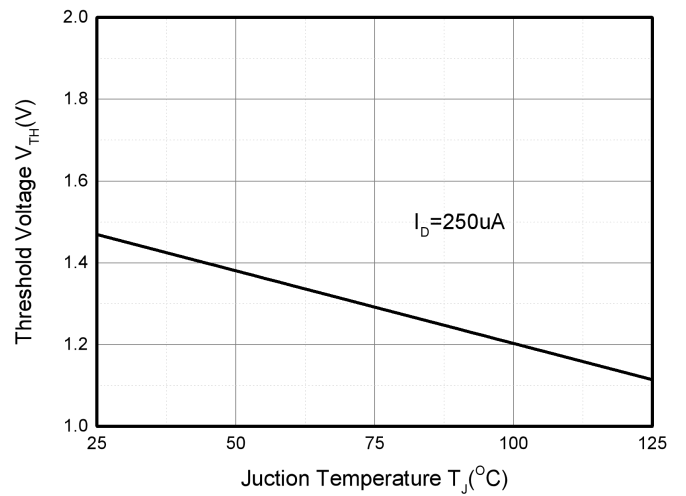
On-Resistance vs. Drain current



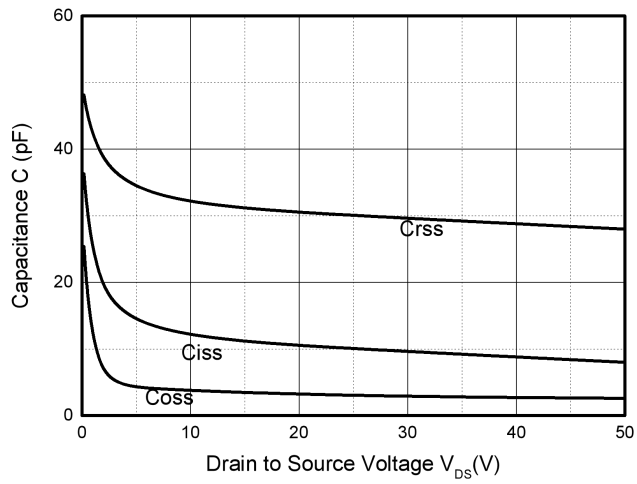
On-Resistance vs. Gate to Source Voltage



Source Current vs. Source to Drain Voltage

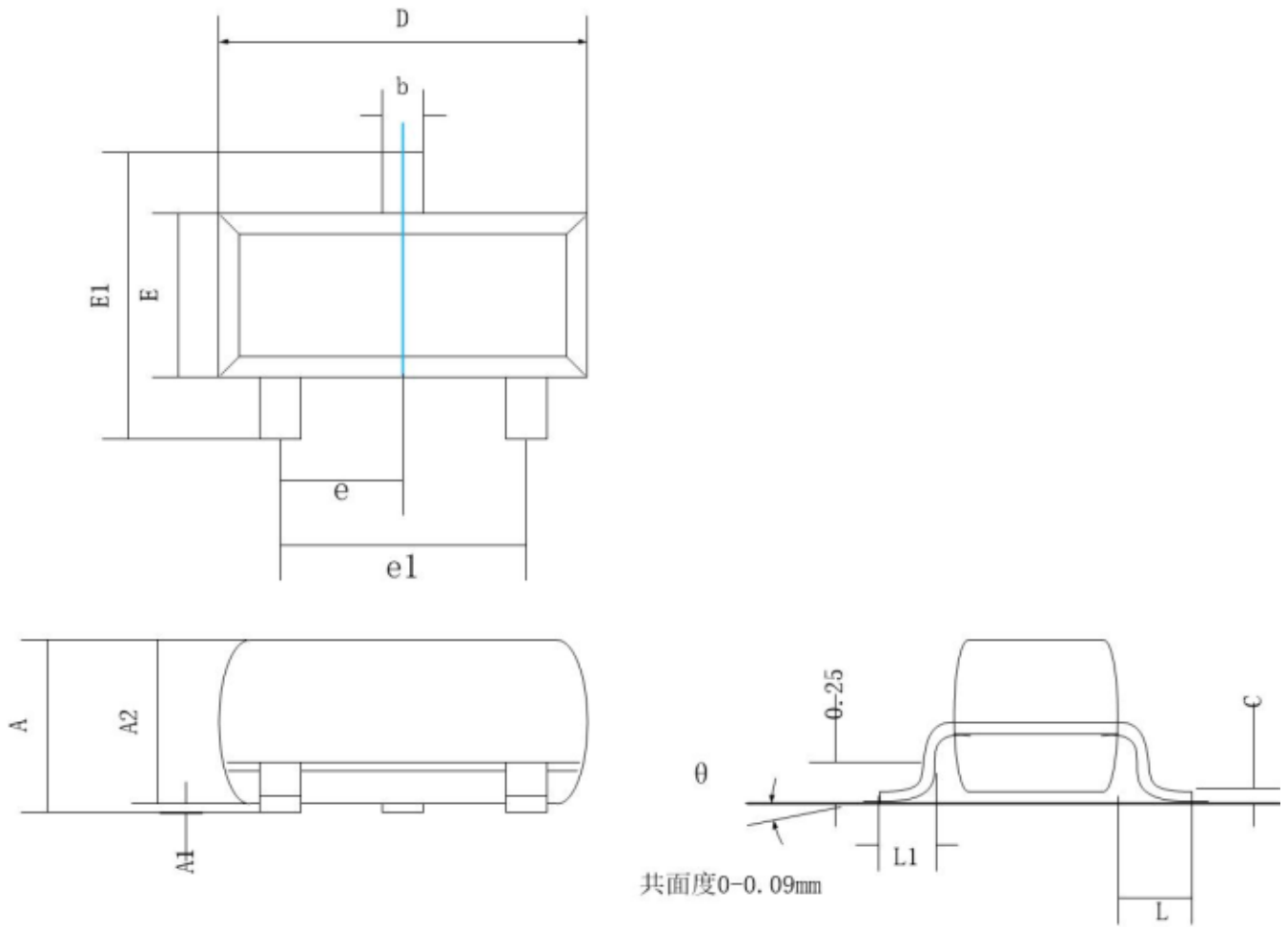


Threshold voltage vs. Junction temperature



Drain to Source Voltage vs. Capacitance

SOT-23 Package Information



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.90	1.15
A1	0.00	0.10
A2	0.90	1.05
b	0.30	0.50
c	0.08	0.15
D	2.80	3.00
E	1.20	1.40
E1	2.25	2.55
e	0.95 REF.	
e1	1.80	2.00
L	0.55 REF.	
L1	0.30	0.50
θ	0°	8°