

Product Summary

- $V_{DS} = 100V, I_D = 0.3A$
- $R_{DS(on)} < 5.5\Omega @ V_{GS} = 10V$
- $R_{DS(on)} < 5.7\Omega @ V_{GS} = 4.5V$

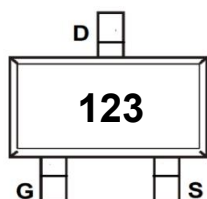
Features

- ESD Protected(HBM) up to 2KV
- Advanced Trench Technology
- RoHS and Reach Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 3

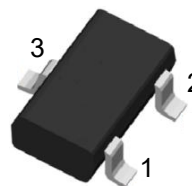
Application

- Battery Operated Systems
- Direct Logic-level Interface:TTL/CMOS
- Solid-State Relays

Marking Code



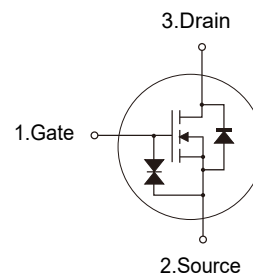
SOT-323



(Top View)

Pin	Description
1	Gate
2	Source
3	Drain

Schematic Diagram



Absolute Maximum Ratings

(Ta=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	0.3	A
Drain Current-Pulsed ^{Note1}	I_{DM}	0.8	A
Maximum Power Dissipation	P_D	0.15	W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance,Junction-to-Ambient ^{Note2}	$R_{\theta JA}$	833	°C/W
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Electrical Characteristics

(T_J=25°C unless o therwise s pecified)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D =250μA	100			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V,V _{GS} =0V			1	μA
Gate-Body Leakage Current	I _{GSS1}	V _{GS} = ± 20V, V _{DS} =0V			± 100	nA
	I _{GSS2}	V _{GS} = ± 10V, V _{DS} =0V			± 50	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =250μA	1.0	1.8	2.5	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D =200mA		3.0	5.5	Ω
		V _{GS} = 4.5V, I _D =200mA		3.5	5.7	
Diode Forward Voltage	V _{SD}	I _S =200mA,V _{GS} =0V			1.2	V
Maximum Body-Diode Continuous Current	I _S				200	mA
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =50V,V _{GS} =0V,f=1MHZ		32		pF
Output Capacitance	C _{oss}			10		
Reverse Transfer Capacitance	C _{rss}			7		
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =10V,V _{DS} =50V,I _D =0.2A		1.61		nC
Turn-on Delay Time	t _{D(on)}	V _{GS} =10V,V _{DD} =50V, I _D =0.2A, R _{GEN} =6Ω		1.8		ns
Turn-on Rise Time	t _r			9.2		
Turn-off Delay Time	t _{D(off)}			17.5		
Turn-off fall Time	t _f			7.6		

A. Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.
B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Typical Characteristic Curves

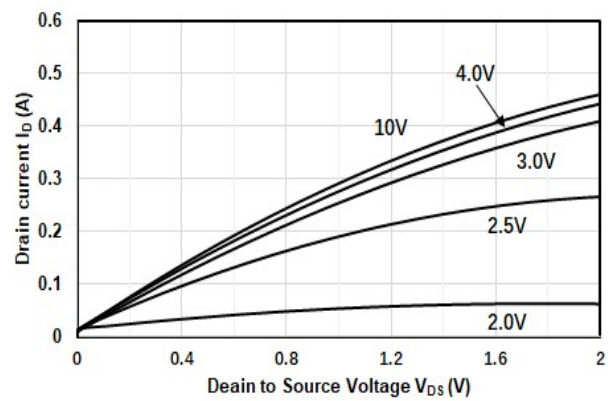


Figure1. Output Characteristics

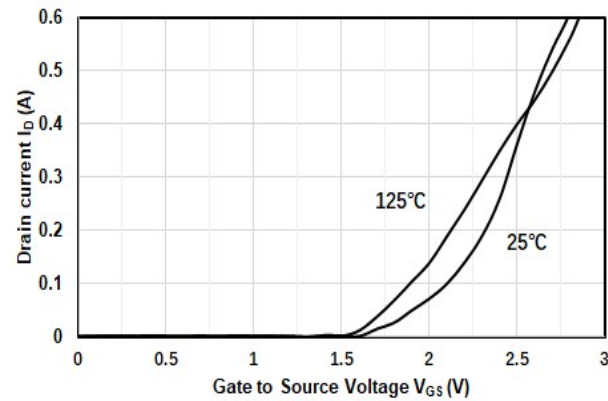


Figure2. Transfer Characteristics

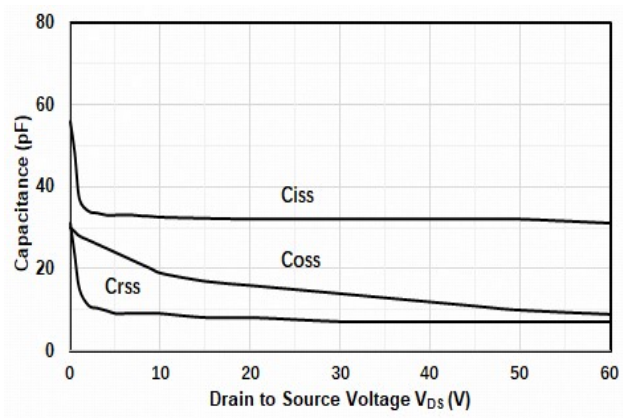


Figure3. Capacitance Characteristics

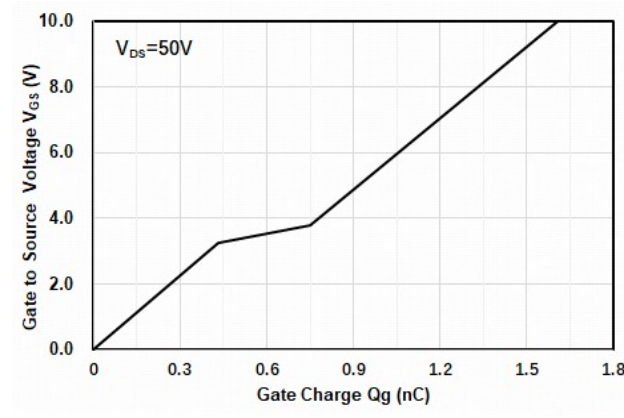


Figure4. Gate Charge

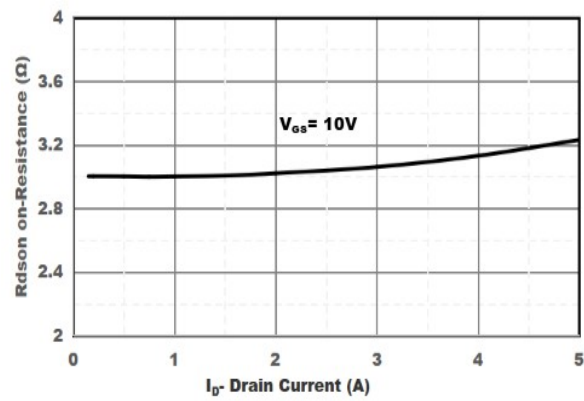


Figure5. Drain-Source on Resistance

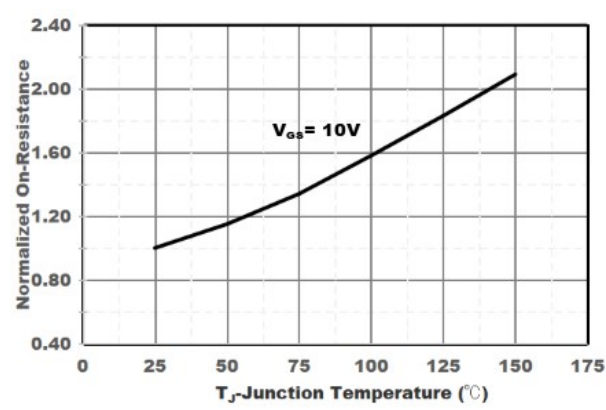


Figure6. Drain-Source on Resistance

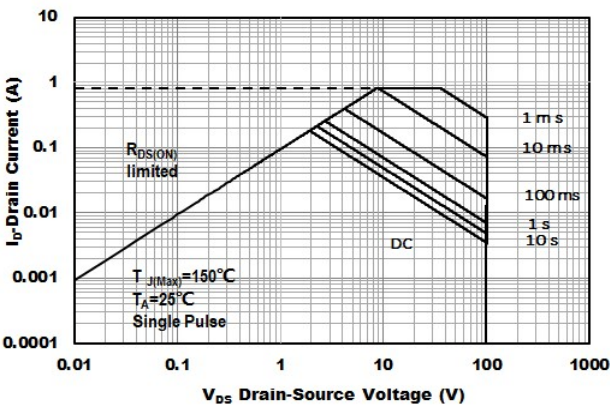


Figure7. Safe Operation Area

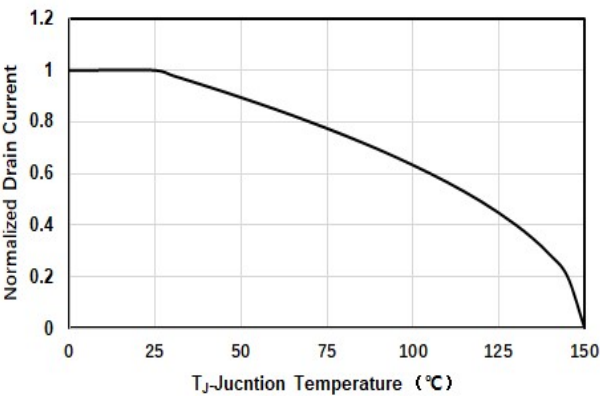
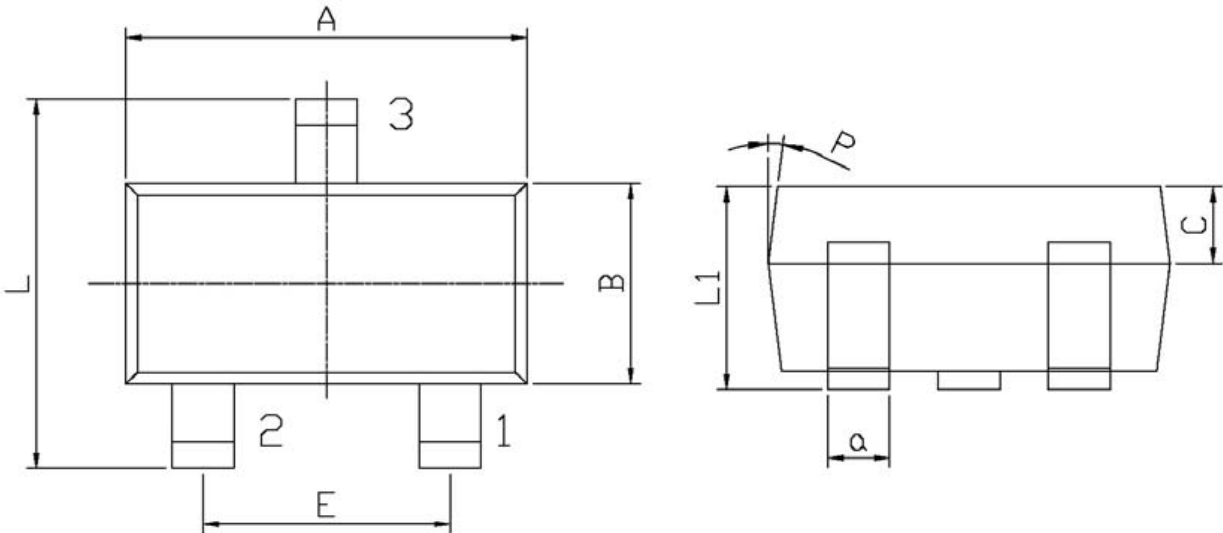


Figure8. Drain-Source Current

Package Outline

SOT-323

Dimensions in mm



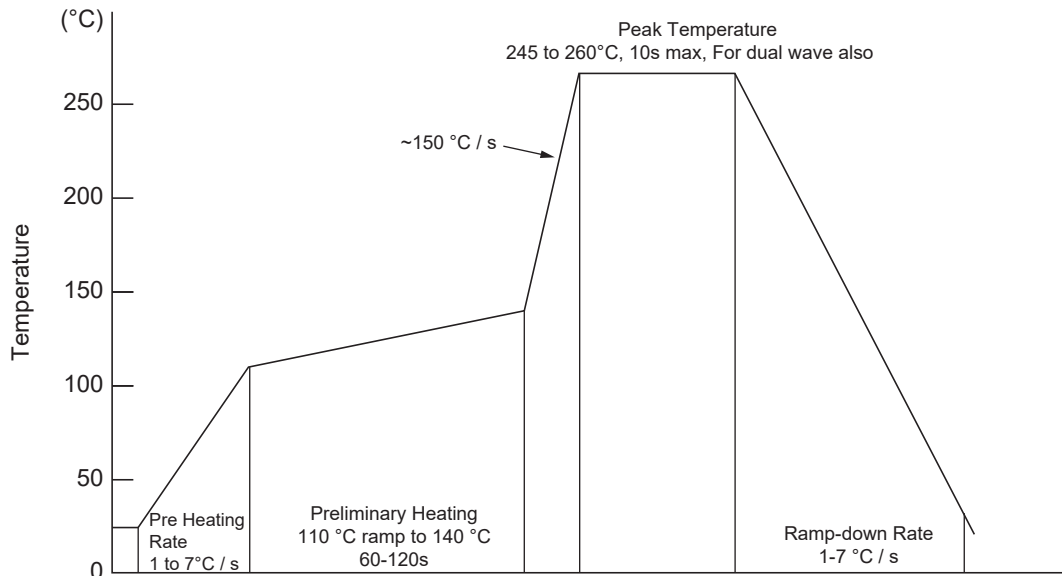
Symbol	Dimensions		Symbol	Dimensions	
	Min.	Max.		Min.	Max.
A	1.95	2.35	C	0.30	0.50
L	2.00	2.20	L1	0.85	1.15
E	1.20	1.40	a	0.20	0.40
B	1.15	1.35	P	7°	

Ordering Information

Device	Package	Shipping
TN123KNSI	SOT-323	3,000PCS/Reel&7inches

Conditions of Soldering and Storage

◆ Wave Soldering



◆ Conditions of hand soldering

- Temperature: 360°C
- Time: 3s max.
- Times: one time

◆ Storage conditions

- Temperature 5 to 40°C
- Humidity 30 to 80% RH
- Recommended period One year after manufacturing

Contact Information

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For additional information, please contact your local Sales Representative.



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Product Specification Statement

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