

## FEATURES

- | Lead free product is acquired

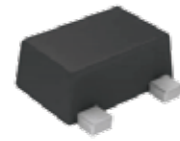
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- | Surface mount package

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- | Moisture Sensitivity Level 3

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SOT-723

## MECHANICAL DATA

- | SOT-723 Small Outline Plastic Package

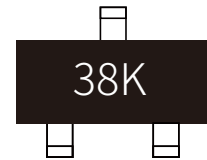
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- | Epoxy UL: 94V-0

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- | Mounting Position: Any

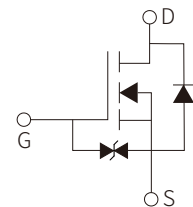
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Marking

## APPROVALS

<b>RoHS</b>	Compliance with 2011/65/EU
<b>HF</b>	Compliance with IEC61249-2-21:2003



Schematic Symbol

## ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	50	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	0.22	A
Power Dissipation	$P_D$	300	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	417	$^{\circ}C/W$
Junction Temperature	$T_J$	150	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55 to 150	$^{\circ}C$

## ELECTRICAL CHARACTERISTICS (Ta=25°C )

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	50			V
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$			$\pm 10$	$\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=50V, V_{GS}=0V$			1	$\mu A$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5		1.5	V
Drain-source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=0.22A$			3.5	$\Omega$
		$V_{GS}=4.5V, I_D=0.22A$			6	$\Omega$
Forward Transconductance <sup>1</sup>	$g_{FS}$	$V_{DS}=10V, I_D=0.2A$	0.12			S
Gate Resistance	$R_g$	f=1MHz, Open drain		69		$\Omega$
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		27		pF
Output Capacitance	$C_{oss}$			13		pF
Reverse Transfer Capacitance	$C_{rss}$			6		pF
<b>Switching Characteristics</b>						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=30V, I_D=0.29A$ $V_{GS}=10V, R_G=6\Omega$			5	ns
Turn-on Rise Time	$t_r$				18	ns
Turn-Off Delay Time	$t_{d(off)}$				36	ns
Turn-off Fall Time	$t_f$				14	ns
<b>Source-Drain Diode Characteristics</b>						
Diode Forward Voltage	$V_{SD}$	$V_{GS}=10V, I_S=0.2A$			1.3	V
Reverse Recovery Time	$t_{rr}$	$I_S=0.5A, di/dt=100A/us$		8.8		ns
Reverse Recovery Charge	$Q_{rr}$			2.6		nC

# PARAMETER CHARACTERISTIC CURVE

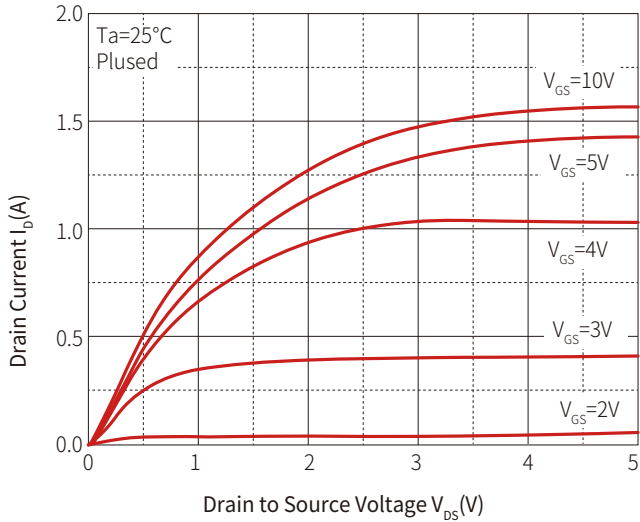
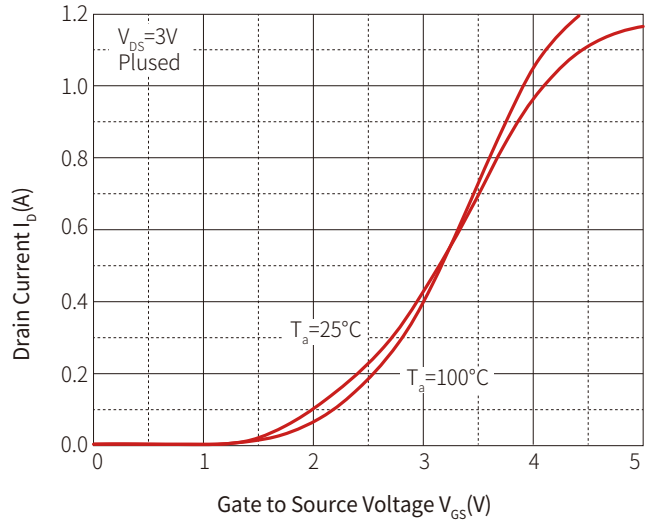
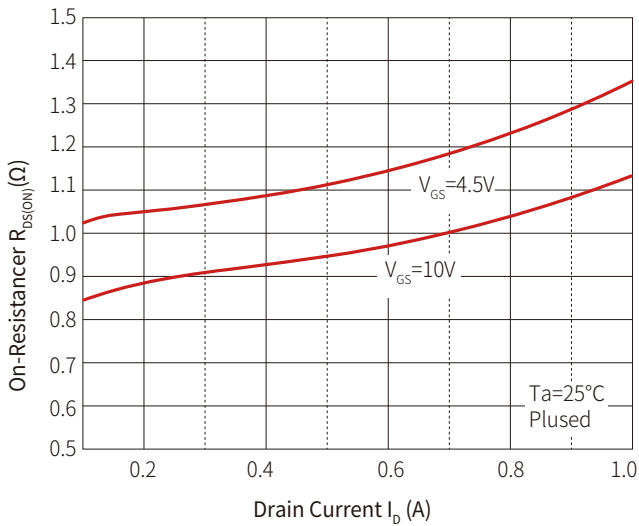
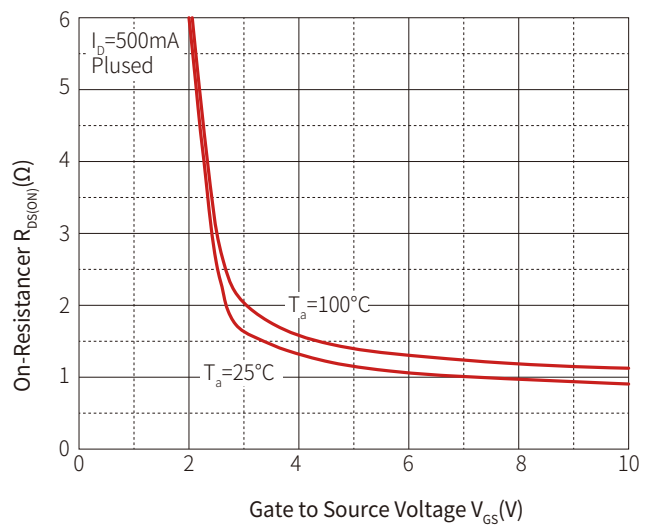
**Figure1: Output Characteristics**

**Figure2: Transfer Characteristics**

**Figure3:  $R_{DS(ON)}$  —  $I_D$** 

**Figure 4:  $R_{DS(ON)}$  —  $V_{GS}$** 


Figure 5:  $I_s$  —  $V_{SD}$

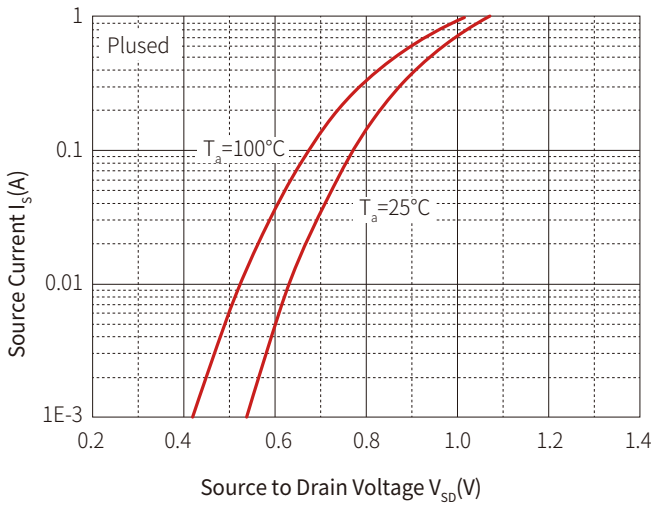
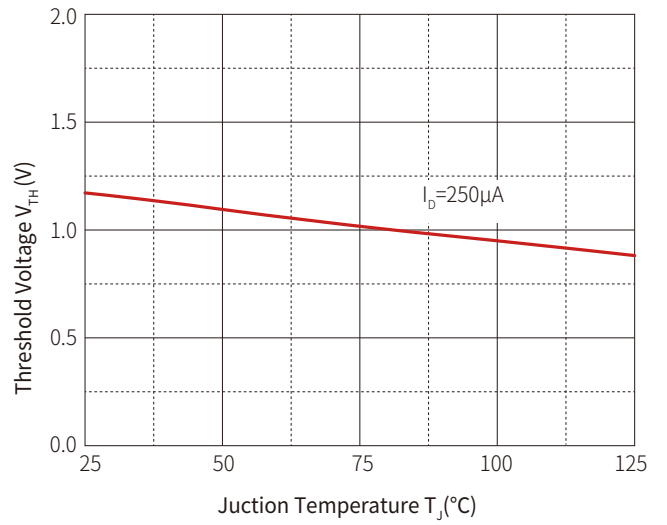
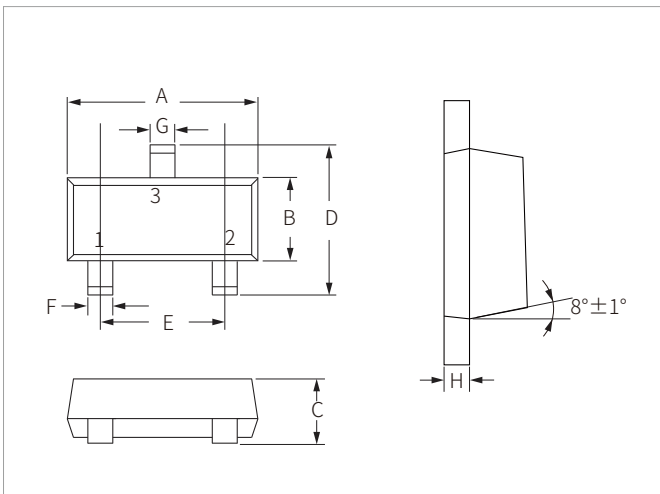


Figure 6: Threshold Voltage

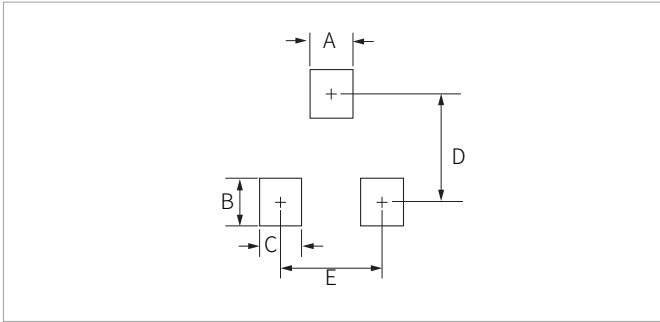


## SOT-723 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.15	1.35	0.045	0.053
B	0.75	0.85	0.030	0.033
C	0.35	0.45	0.014	0.018
D	1.15	1.35	0.045	0.053
E	0.80TYP		0.031TYP	
F	0.175	0.25	0.007	0.010
G	0.225	0.30	0.009	0.012
H	0.09	0.13	0.003	0.005

## RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters	Inches
	Dimensions	Dimensions
A	0.50	0.020
B	0.45	0.018
C	0.40	0.016
D	1.15	0.045
E	0.80	0.031

## ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SNMBSS138ES	SOT-723	8000PCS	7"

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