

/ Descriptions

SOT-523 N MOS
N-CHANNEL MOSFET in a SOT-523 Plastic Package.

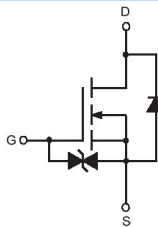
/ Features

Sensitive gate trigger current and Low Holding current.ESD protected,HF Product.

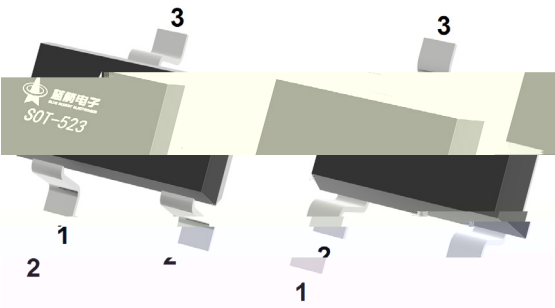
/ Applications

Intended for use in general purpose switching and phase control applications.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 S PIN 3 D

/ Marking

Marking	KN
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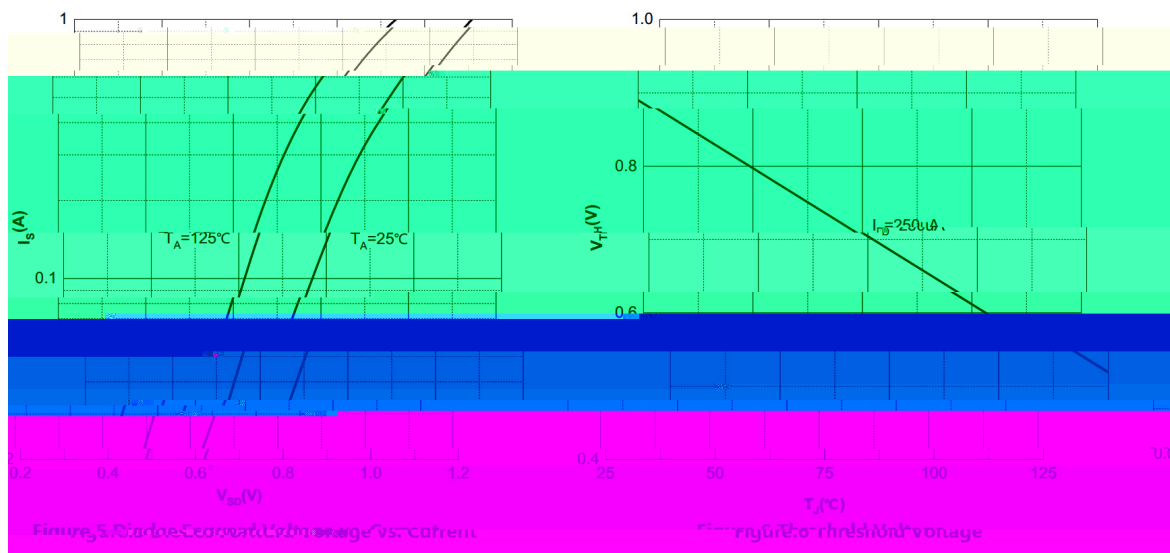
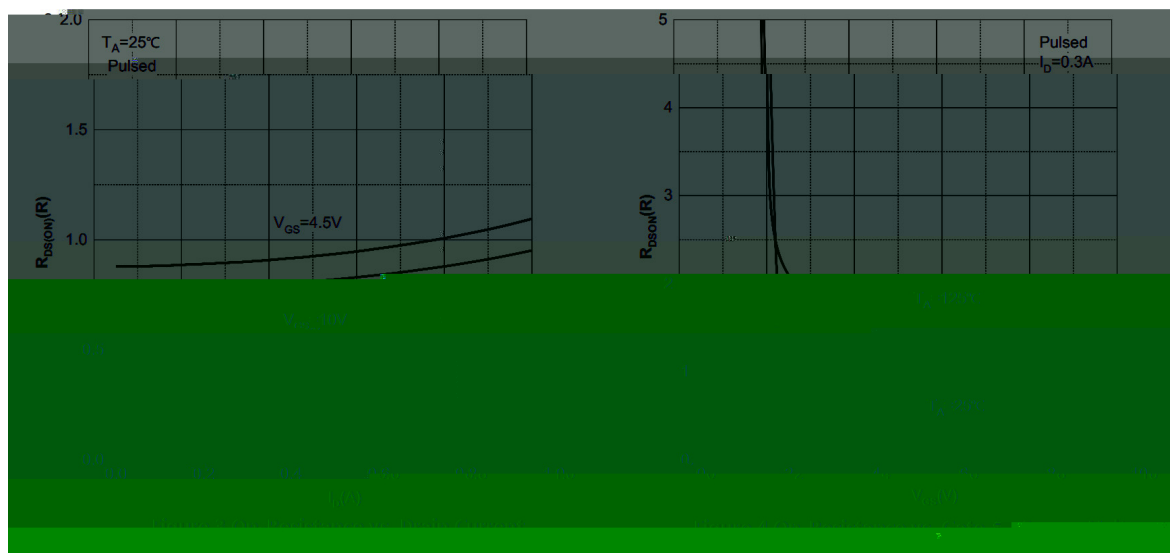
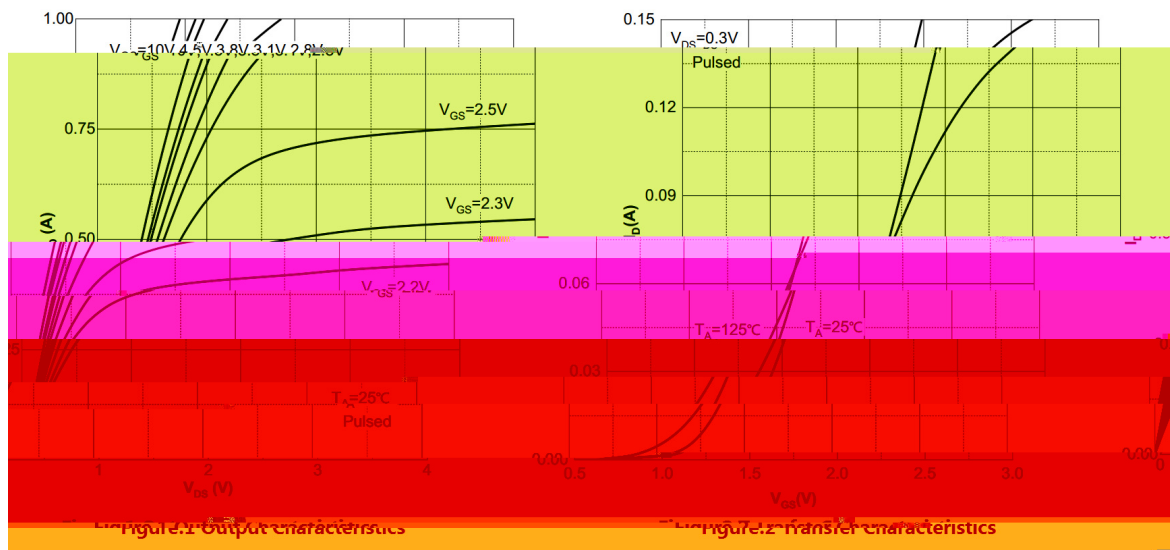
/ Absolute Maximum Ratings($T_a=25^\circ\text{C}$)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	50	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current	I_D	300	mA
Drain Current – Pulsed	I_{DM}	1200	mA
Power Dissipation	P_D	250	mW
Junction Temperature Range	T_j	150	
Storage Temperature Range	T_{stg}	-55 150	
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	500	/W

/ Electrical Characteristics($T_a=25^\circ\text{C}$)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	$V_{GS}=0$ $I_D=250\text{ }\mu\text{A}$	50			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{GS}=0$ $V_{DS}=50\text{V}$			1.0	μA
Gate-Source Leakage current	I_{GSS}	$V_{DS}=0\text{V}$ $V_{GS}=\pm 20\text{V}$			± 2	μA
Static Drain-Source On-Resistance	$R_{DS(on)(1)}$	$V_{GS}=10\text{V}$ $I_D=0.3\text{A}$		0.92	2.5	$\text{m}\Omega$
	$R_{DS(on)(2)}$	$V_{GS}=4.5\text{V}$ $I_D=0.2\text{A}$		0.98	3	$\text{m}\Omega$
	$R_{DS(on)(3)}$	$V_{GS}=2.5\text{V}$ $I_D=0.01\text{A}$		1.2	4.5	$\text{m}\Omega$
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0\text{V}$ $I_S=300\text{mA}$			1.2	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\text{ }\mu\text{A}$	0.6	0.9	1.5	V
Input Capacitance	C_{iss}	$V_{GS}=0\text{V}$, $f=1\text{MHz}$, $V_{DS}=15\text{V}$		30		pF
Output Capacitance	C_{oss}			5.2		
Reverse Transfer Capacitance	C_{rss}			3.3		
Gate Resistance	R_g	$V_{DS}=0\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$		157		Ω
Turn-On Delay Time	$t_{d(ON)}$	$V_{GS}=5\text{V}$, $V_{DD}=5\text{V}$, $R_L=500\Omega$, $R_G=10\Omega$		15		ns
Rise Time	t_r			35		
Turn-Off Delay Time	$t_{d(OFF)}$			80		
Fall Time	t_f			80		

/ Electrical Characteristic Curve



/ Electrical Characteristic Curve

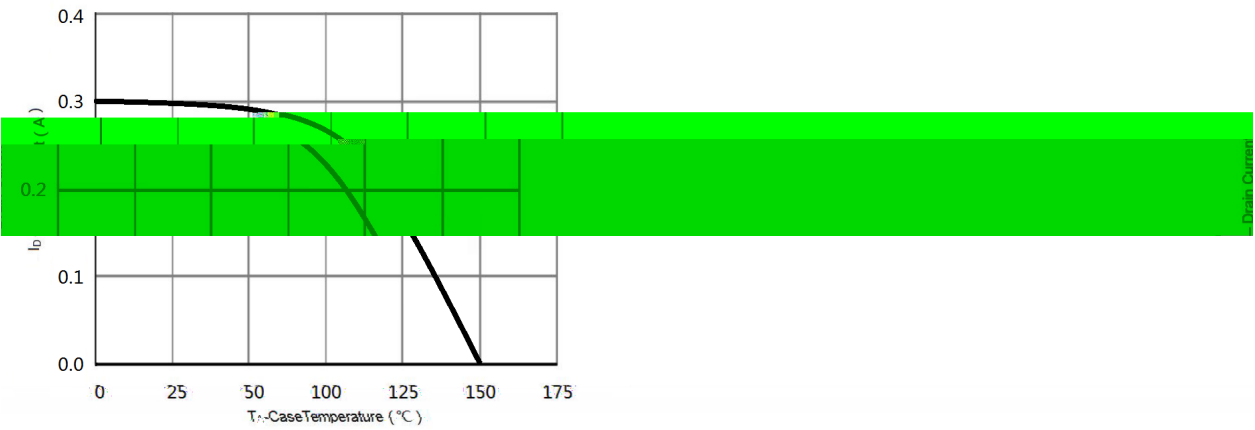
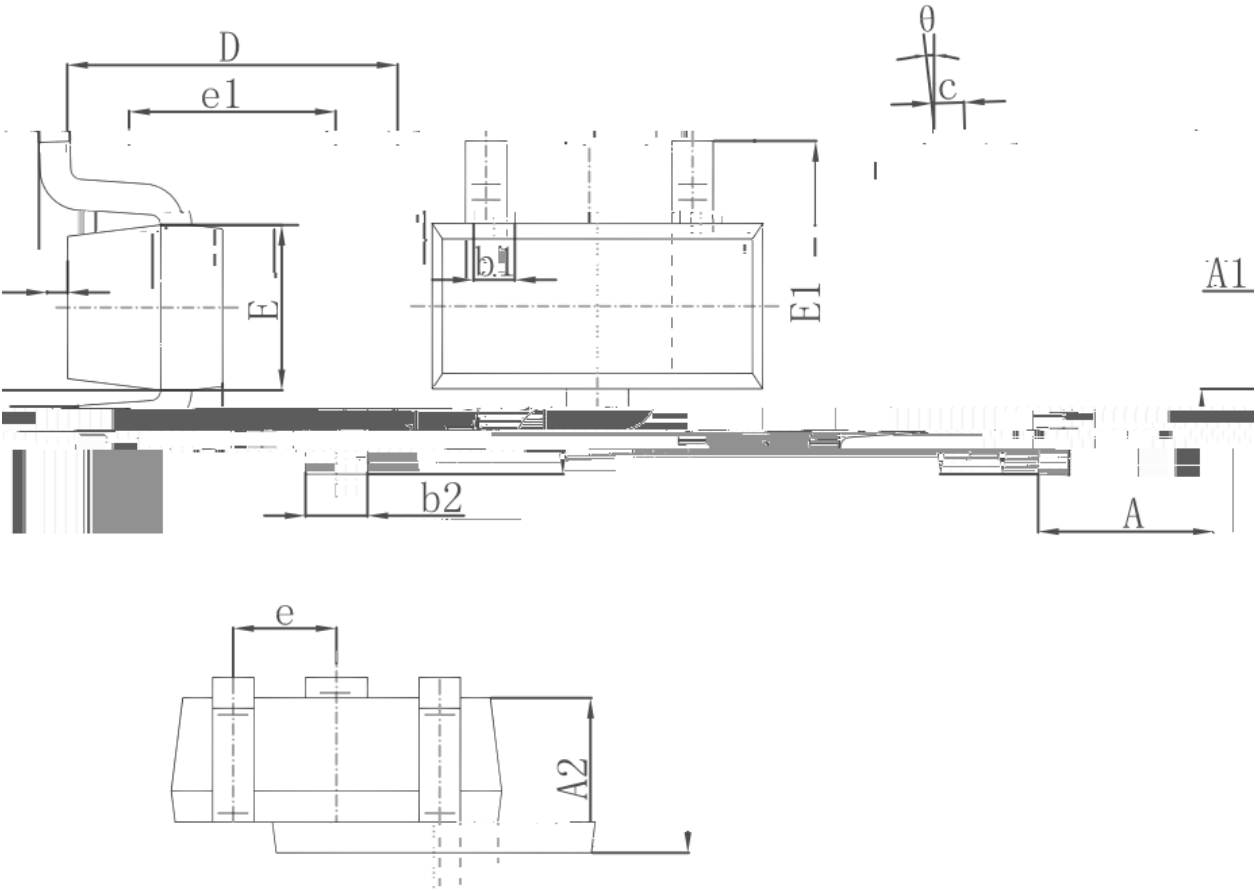


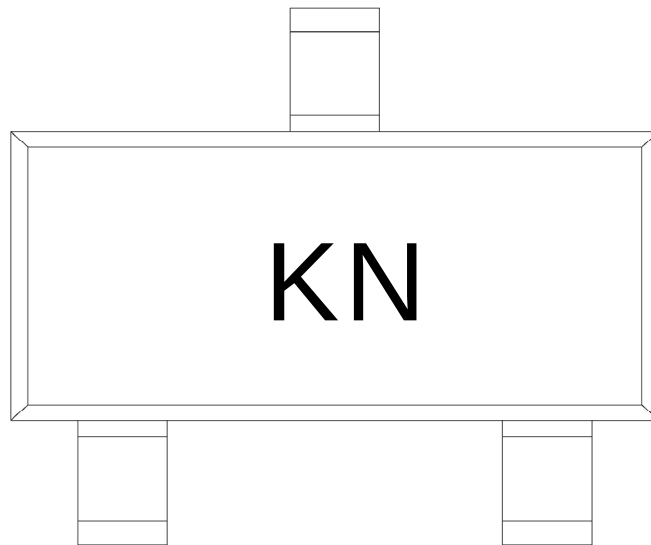
Figure 7 : Current De-rating

/ Package Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.100	0.200	0.004	0.008
b2	0.250	0.350	0.010	0.014
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
e	0.100	0.200	0.004	0.008
e1	1.750	0.057	0.069	1.450
L	0.020 TYP.	0.043	0.0008	0.0017
L1	1.100	0.035	0.043	0.500
θ	8°	0°	8°	0°

/ Marking Instructions

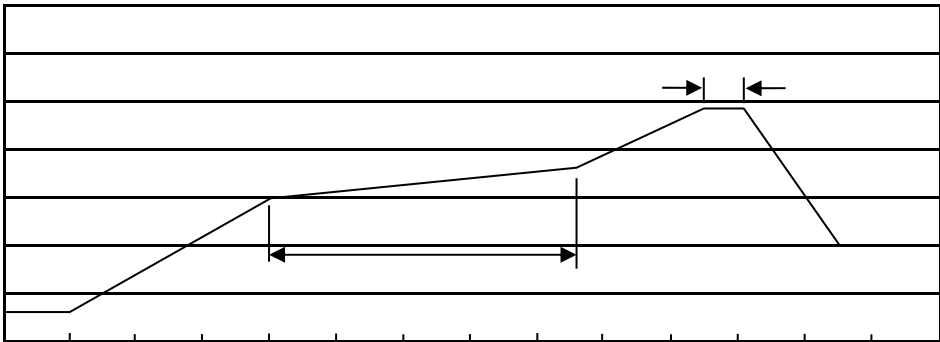


KN

Note:

KN: Product Type Code

() / Temperature Profile for IR Reflow Soldering(Pb-Free)



- 1

150 180

60 90sec;
- 2

245±5

5±0.5sec;
- 3

2 10 /sec.
- Note:

1.Preheating:150~180 , Time:60~90sec.

2.Peak Temp.:245±5 , Duration:5±0.5sec.

3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

260±5 10±1 sec. Temp.:260±5 Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension (unit mm ³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
SOT-523	3,000	10	30,000	6	180,000	7 ×8	180×120×180	390×385×205

/ Notices