

/ Descriptions

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

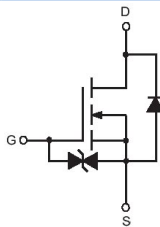
/ Features

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

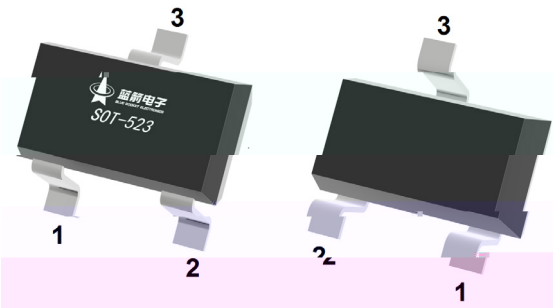
/ Applications

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(Ta=25)

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	$^{\circ}\text{C/W}$

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain–Source Breakdown Voltage	V_{DSS}	$V_{GS}=0$ $I_D=250\mu\text{A}$	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	Ω
	$R_{DS(on)(2)}$	$V_{GS}=4.5\text{V}$ $I_D=0.2\text{A}$		0.98	3	Ω
	$R_{DS(on)(3)}$	$V_{GS}=2.5\text{V}$ $I_D=0.01\text{A}$		1.2	4.5	Ω
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0\text{V}$ $I_S=300\text{mA}$			1.2	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu\text{A}$	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		

I Electrical Characteristic Curve

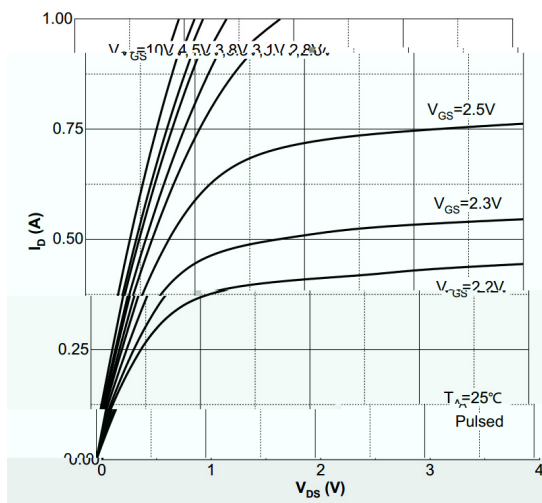


Figure 2 Output characteristics

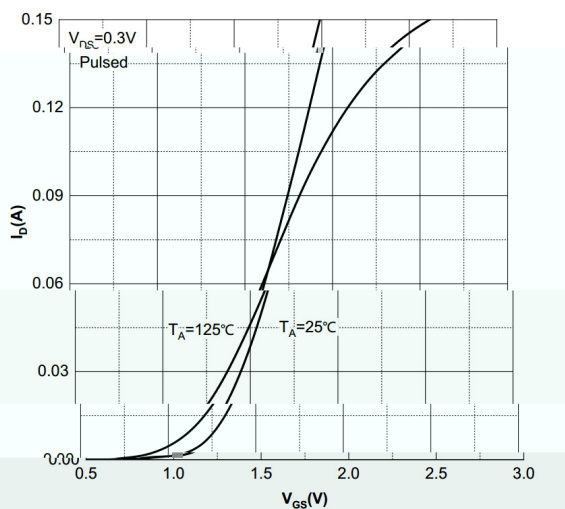


Figure 3 Transfer characteristics

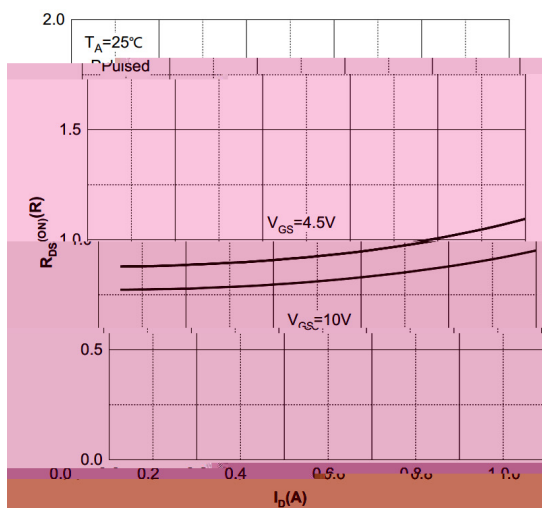


Figure 4 On-Resistance vs. Drain Current

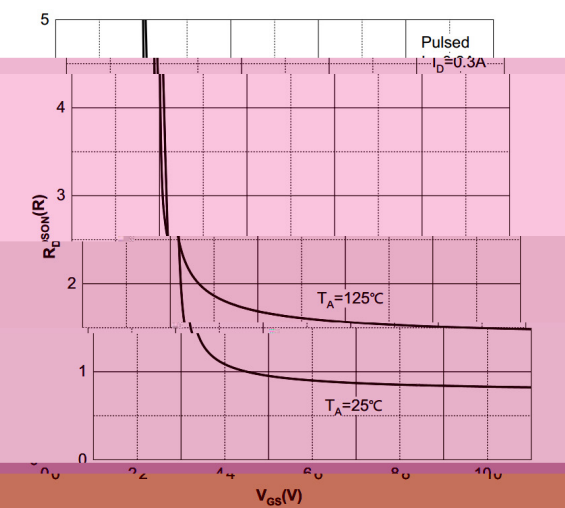


Figure 5 On-Resistance vs. Gate-Source Voltage

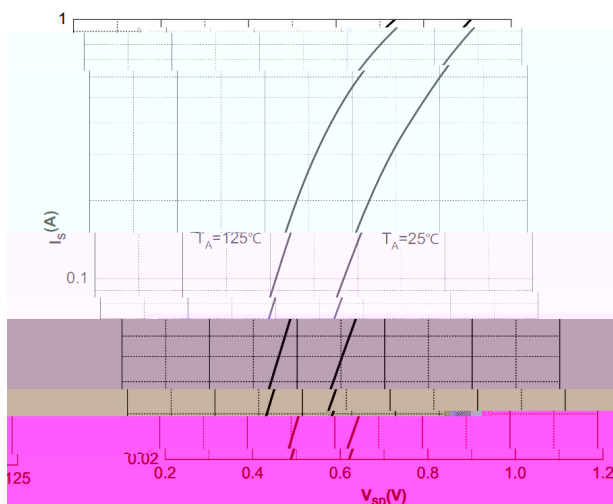


Figure 6 Power Dissipation vs. Temperature

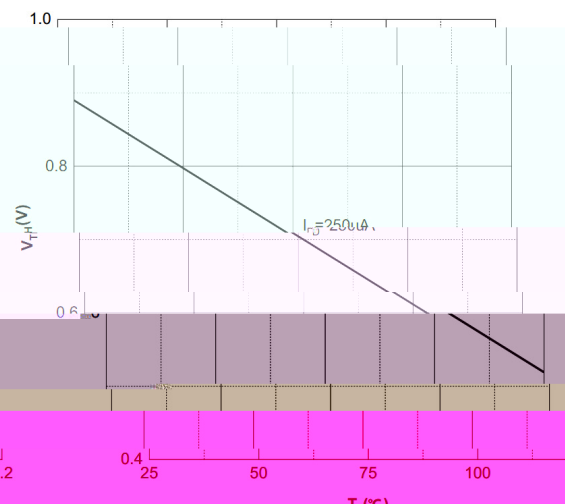


Figure 7 Threshold Voltage

/ Electrical Characteristic Curve

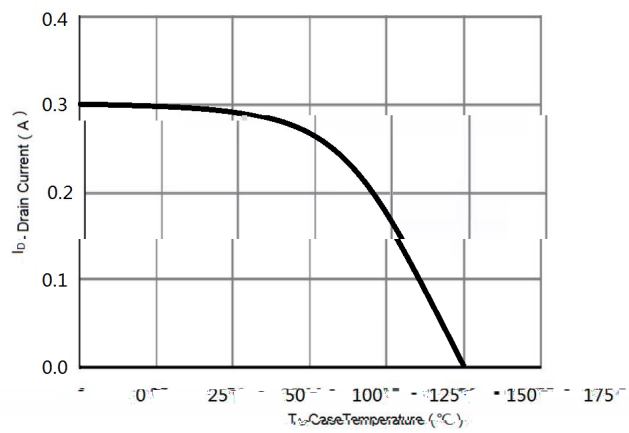
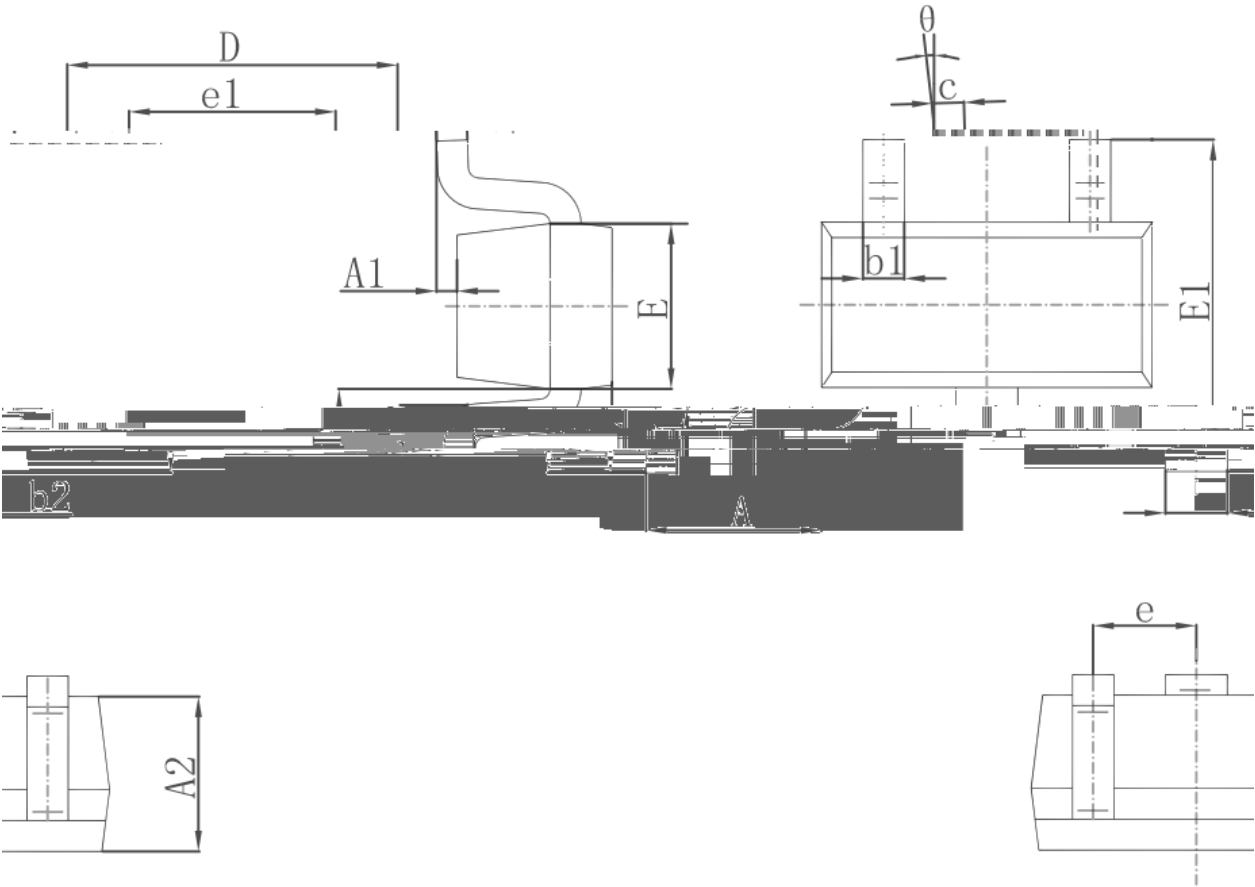


Figure 7 : Current De-rating

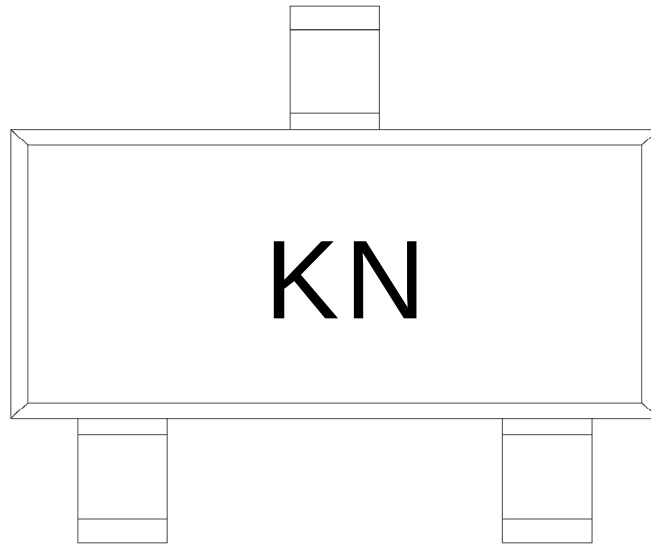
/ Package Dimensions



Dimensions In Millimeters		Dimensions In Inches		Symbol	Unit
Min.	Max.	Min.	Max.		
0.700	0.900	0.028	0.035	A	mm
0.000	0.100	0.000	0.004	A1	mm
0.700	0.800	0.028	0.031	A2	mm
0.150	0.150	0.006	0.006	b1	mm
0.250	0.350	0.010	0.014	b2	mm
0.200	0.004	0.008	0.000	c	mm
0.700	0.059	0.067	0.000	D	mm
0.300	0.028	0.035	0.000	E	mm
0.750	0.057	0.069	0.000	E1	mm
	0.020 TYP.			e	mm
0.100	0.035	0.043		e1	mm
	0.016 REF.			L	mm
0.460	0.010	0.018		L1	mm
8°	0°	8°		theta	°



/ Marking Instructions

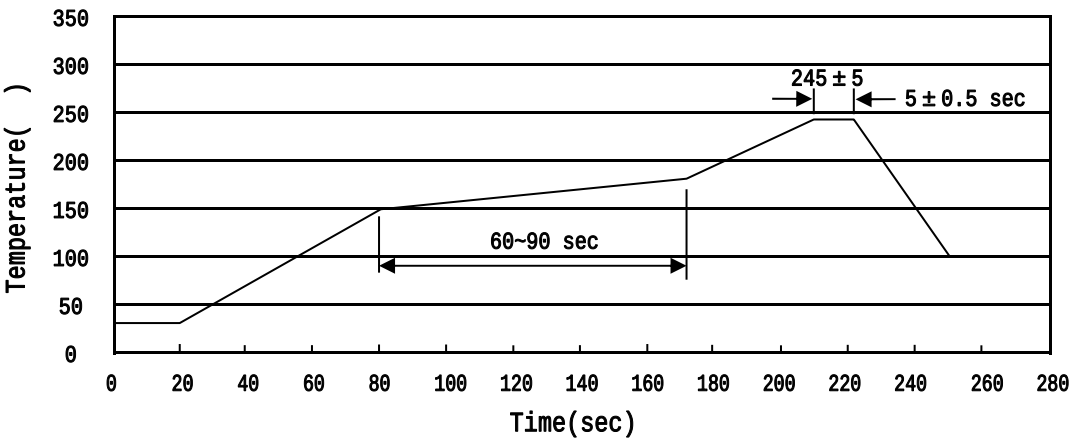


KN

Note:

KN: Product Type Code

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



Note:

- | | | | | | |
|---|-------|-----|----|-----------|--|
| 1 | 150 | 180 | 60 | 90sec; | 1.Preheating:150~180 °C , Time:60~90sec. |
| 2 | 245±5 | | | 5±0.5sec; | 2.Peak Temp.:245±5 °C , Duration:5±0.5sec. |
| 3 | | 2 | 10 | /sec. | 3. Cooling Speed: 2~10 °C/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)		
SOT-523	3,000	10	30,000	6	180,000	7" ×8	180×120×180	390×385×205

/ Notices