

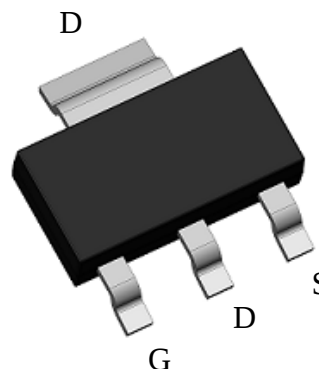
N-Channel Enhancement Mode MOSFET

Outline

Features:

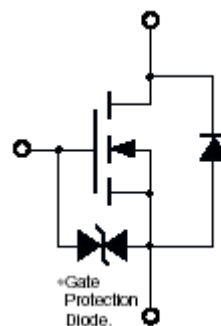
- Low Gate Charge
- Simple Drive Requirement
- ESD protected gate
- Pb-free lead plating & Halogen-free package

SOT-223



BV_{DSS}	100V
I_D @ V_{GS}=10V, T_A=25°C	3.3A
R_{DS(on)}@V_{GS}=10V, I_D=2A	107mΩ (typ.)
R_{DS(on)}@V_{GS}=4.5V, I_D=2A	127mΩ (typ.)

Equivalent Circuit



G : Gate D : Drain

S : Source

Ordering Information

Device	Package	Shipping
KWB095N10KRL3	SOT-223 (Pb-free lead plating & Halogen-free package)	2500 pcs / Tape & Reel

Absolute Maximum Ratings (T_c=25°C, unless otherwise noted)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V _{DS}	100	V
Gate-Source Voltage	V _{GS}	±20	
Continuous Drain Current @ T _A =25°C, V _{GS} =10V	I _D	3.3	A
Continuous Drain Current @ T _A =70°C, V _{GS} =10V		2.6	
Pulsed Drain Current *1	I _{DM}	16	
Avalanche Current @ L=0.1mH	I _{AS}	6	mJ
Avalanche Energy @ L=1mH, I _D =6A, V _{DD} =50V *2	E _{AS}	18	
Repetitive Avalanche Energy @ L=0.05mH	E _{AR}	0.625	
Total Power Dissipation @T _A =25°C	P _D	2.5	W
Total Power Dissipation @T _A =70°C		1.6	
Operating Junction and Storage Temperature Range	T _j , T _{stg}	-55~+150	°C

Note : *1. Pulse width limited by maximum junction temperature

*2. Guaranteed by design, not by 100% test.

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max	R _{θJC}	18.5	°C/W
Thermal Resistance, Junction-to-ambient, max	R _{θJA}	50 (Note)	

Note : When mounted on a 1 in² pad of 2 oz. copper.

Characteristics (T_c=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	100	-	-	V	V _{GS} =0V, I _D =250μA
V _{GS(th)}	1.2	-	2.6		V _{DS} =V _{GS} , I _D =250μA
G _{FS} *1	-	2.9	-	S	V _{DS} =10V, I _D =1A
I _{GSS}	-	-	±10	μA	V _{GS} =±16V, V _{DS} =0V
I _{DSS}	-	-	1		V _{DS} =80V, V _{GS} =0V
	-	-	25		V _{DS} =80V, V _{GS} =0V, T _j =125°C
R _{DS(ON)} *1	-	107	140	mΩ	V _{GS} =10V, I _D =2A
	-	127	180		V _{GS} =4.5V, I _D =2A
Dynamic					
Q _g *1, 2	-	6.7	10	nC	V _{DS} =80V, V _{GS} =10V, I _D =2A
Q _{gs} *1, 2	-	1.1	1.7		
Q _{gd} *1, 2	-	1.6	2.4		
t _{d(ON)} *1, 2	-	5.2	7.8	ns	V _{DS} =50V, I _D =2A, V _{GS} =10V, R _G =1Ω
t _r *1, 2	-	16.6	24.9		
t _{d(OFF)} *1, 2	-	17	25.5		
t _f *1, 2	-	5.2	7.8		

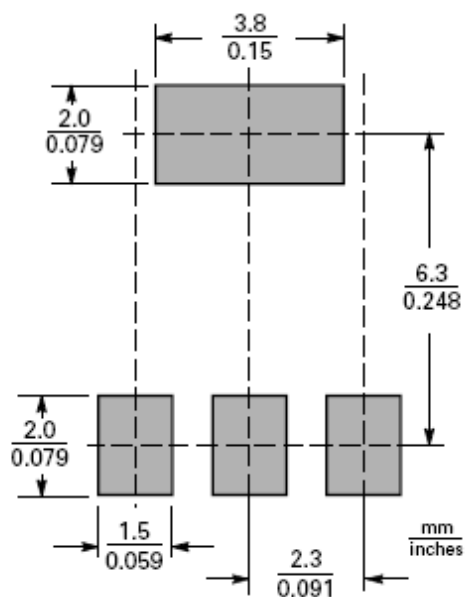
Ciss	-	301	452	pF	V _{GS} =0V, V _{DS} =50V, f=1MHz
Coss	-	29	44		
Crss	-	8	12		
Source-Drain Diode					
I _S *1	-	-	3.3	A	
I _{SM} *3	-	-	16		
V _{SD} *1	-	0.88	1.2	V	I _S =2A, V _{GS} =0V
trr	-	18.3	-	ns	I _F =2A, dI _F /dt=100A/μs
Q _{rr}	-	9.8	-	nC	

Note : *1.Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

*2.Independent of operating temperature

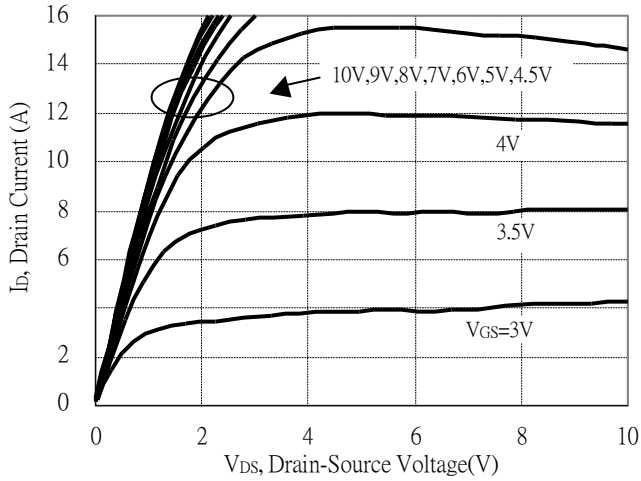
*3.Pulse width limited by maximum junction temperature.

Recommended soldering footprint

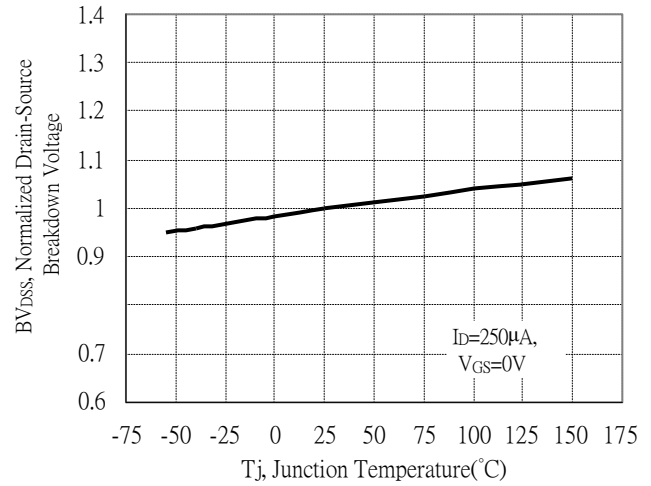


Typical Characteristics

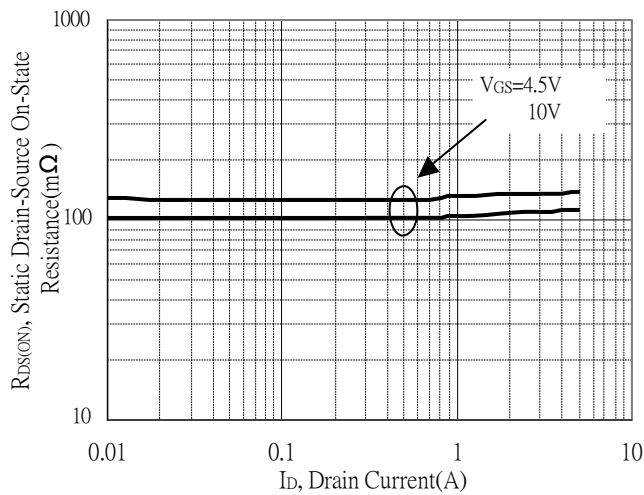
Typical Output Characteristics



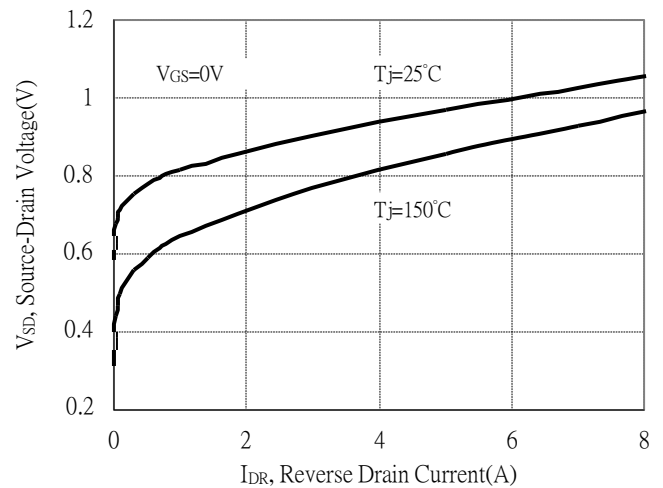
Breakdown Voltage vs Junction Temperature



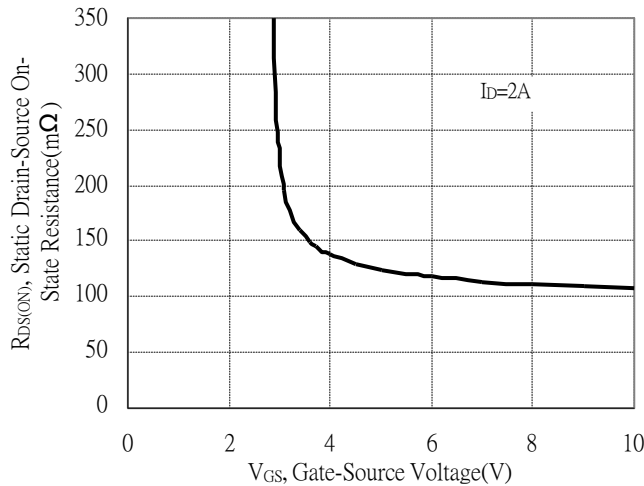
Static Drain-Source On-State resistance vs Drain Current



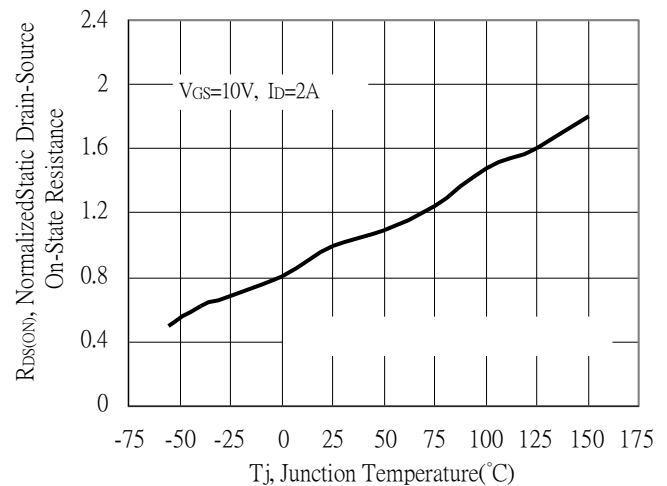
Reverse Drain Current vs Source-Drain Voltage



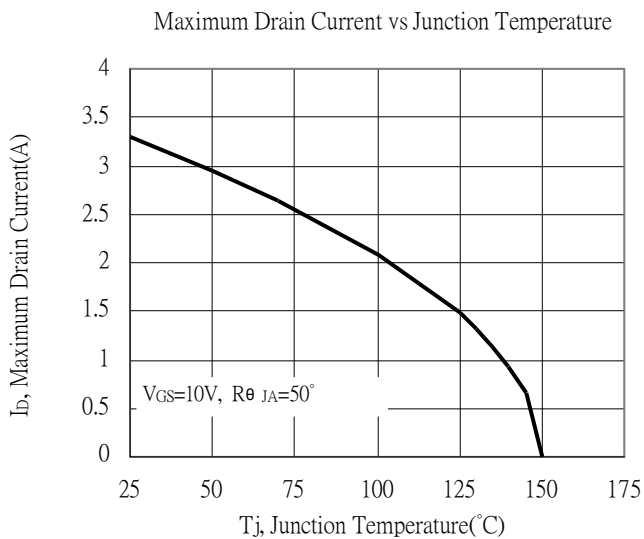
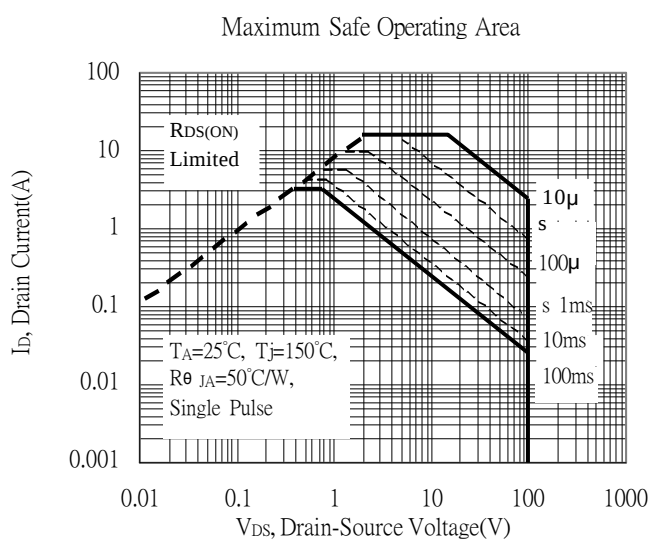
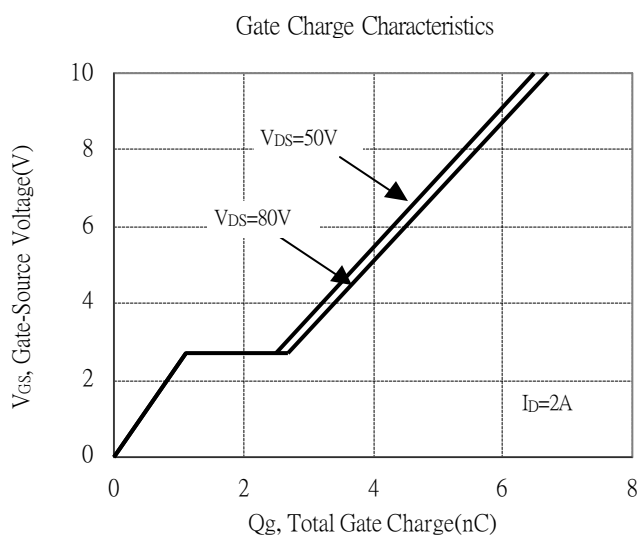
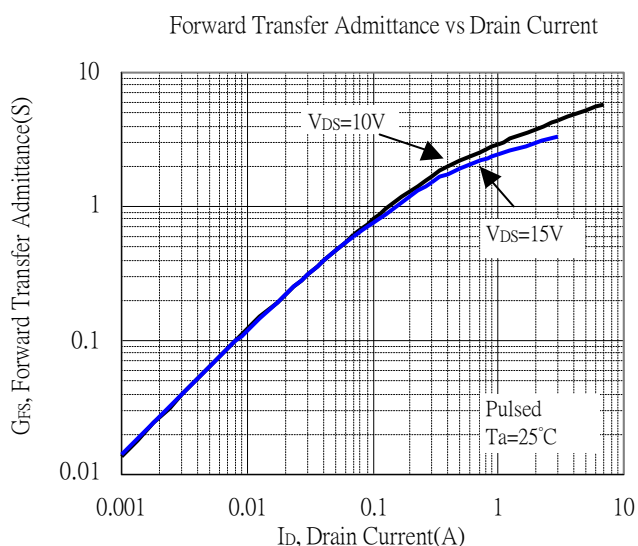
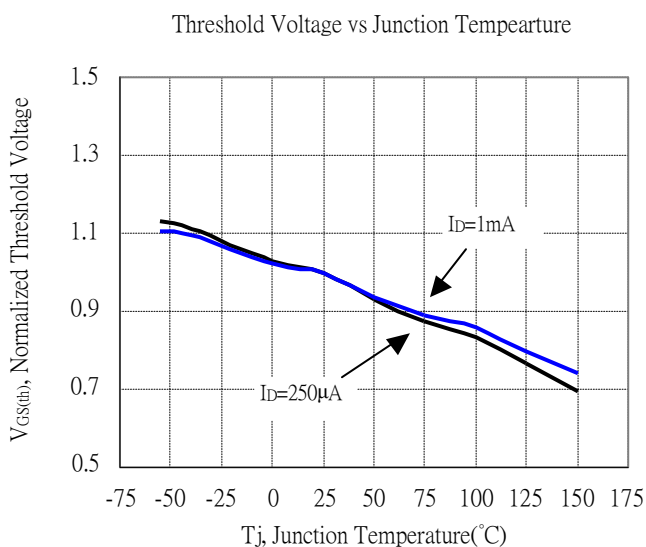
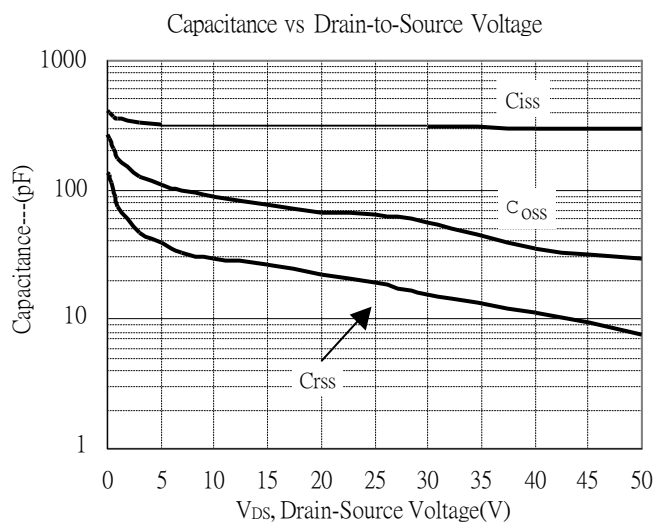
Static Drain-Source On-State Resistance vs Gate-Source Voltage



Drain-Source On-State Resistance vs Junction Temperature

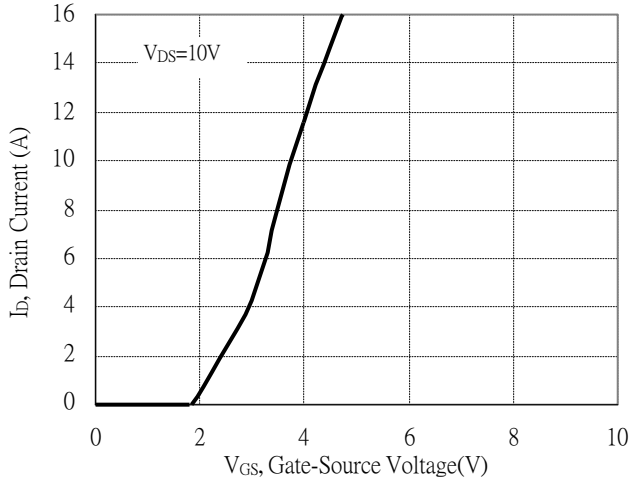


Typical Characteristics(Cont.)

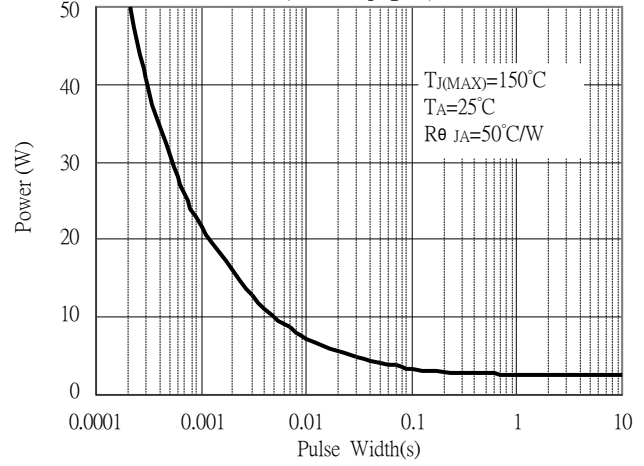


Typical Characteristics(Cont.)

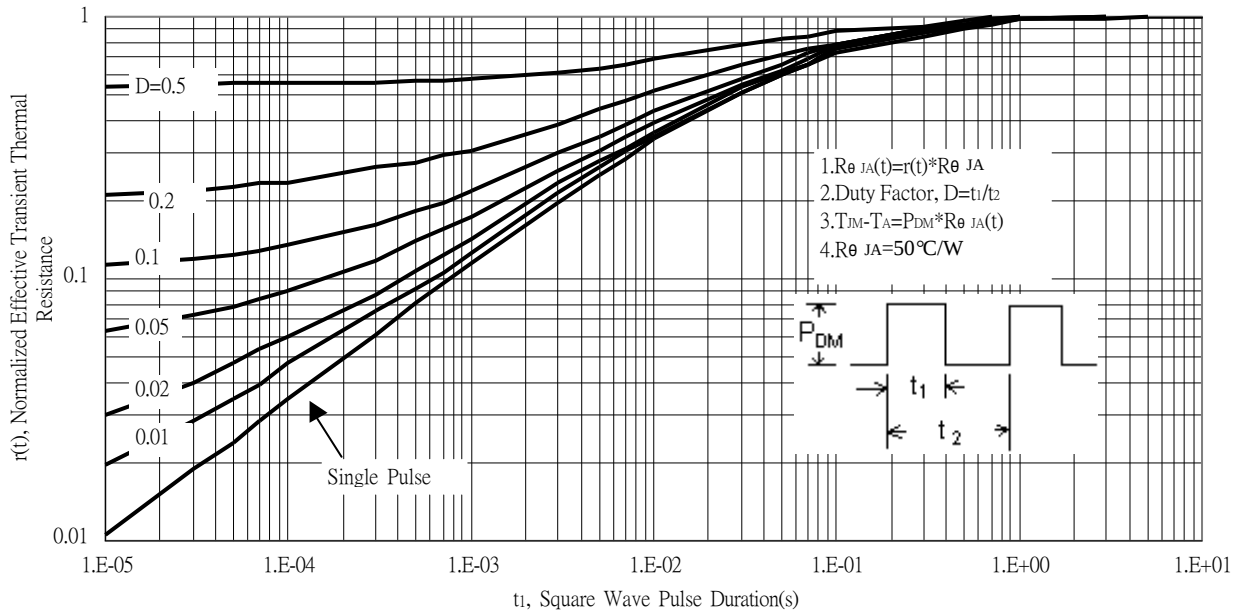
Typical Transfer Characteristics



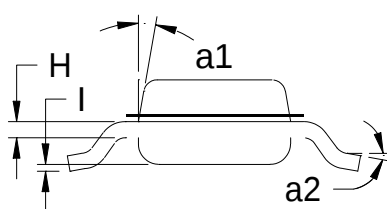
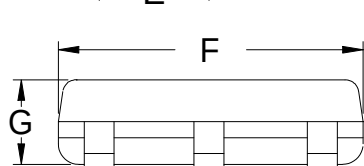
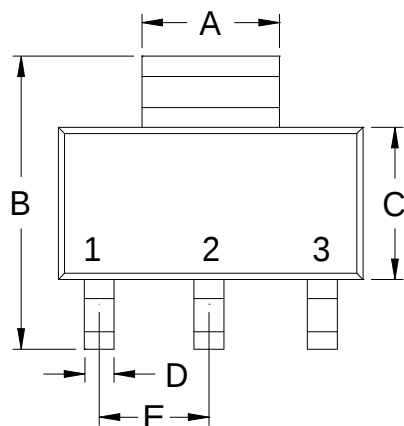
Single Pulse Power Rating, Junction to Ambient
 (Note on page 2)



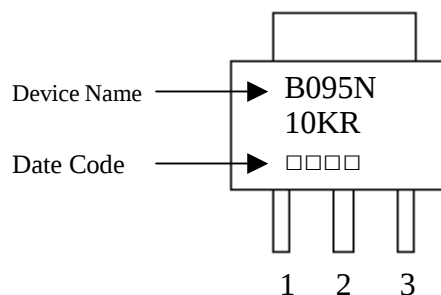
Transient Thermal Response Curves



SOT-223 Dimension



Marking:



Style: Pin 1.Gate 2.Drain 3.Source

3-Lead SOT-223 Plastic
 Surface Mounted Package
 Package Code: L3

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1142	0.1220	2.90	3.10	G	0.0551	0.0709	1.40	1.80
B	0.2638	0.2874	6.70	7.30	H	0.0098	0.0138	0.25	0.35
C	0.1299	0.1457	3.30	3.70	I	0.0008	0.0039	0.02	0.10
D	0.0236	0.0315	0.60	0.80	a1	*13°	-	*13°	-
E	*0.0906	-	*2.30	-	a2	0°	10°	0°	10°
F	0.2480	0.2638	6.30	6.70					