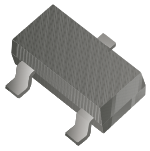
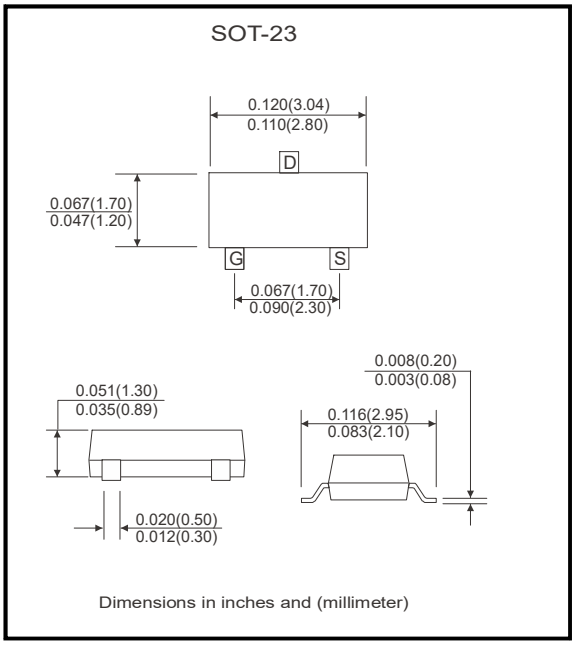
BSS123T-HF

N-Channel
RoHS Device
Halogen Free



$V_{(BR)DSS}$	$R_{DS(on)Typ}$	I_D
100V	2.8Ω @ 10V	100mA
	3.0Ω @ 4.5V	100mA

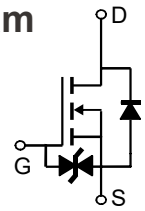


Features

- ESD protected gate
- High speed switching
- Pb-free lead plating and halogen-free package
- Easily designed drive circuits
- Low-voltage drive
- Easy to use in parallel

Circuit diagram

- G : Gate
- S : Source
- D : Drain



Maximum Ratings (at Ta=25 °C unless otherwise noted)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V_{DSS}	100	V
Gate-Source Voltage	V_{GSS}	±20	
Continuous Drain Current @V_{GS}=10V, T_A=25℃	I_D	190	mA
Continuous Drain Current @V_{GS}=10V, T_A=70℃		152	
Pulsed Drain Current	I_{DM}	760 *1	
Total Power Dissipation	P_D	300 *2	mW
Operating Junction Temperature Range	Tj	-55~+150	℃
Storage Temperature Range	Tstg	-55~+150	

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	416 *2	°C/W

Note : *1. Pulse Width ≤ 300μs, Duty cycle ≤2%
*2. When the device is mounted on a glass epoxy board with area measuring 1×0.75×0.62 inch

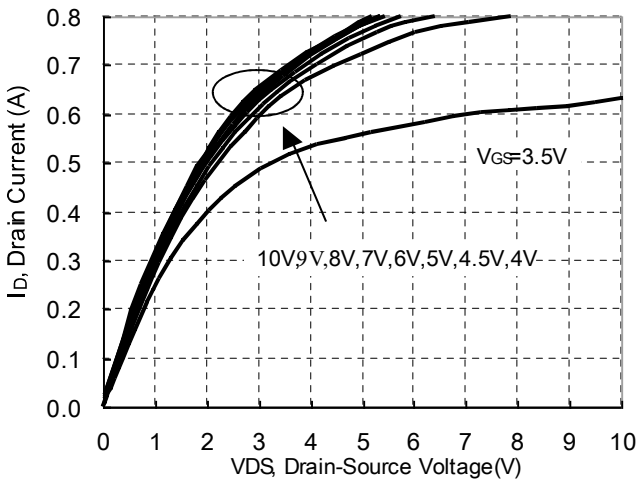
Electrical Characteristics (at T_A=25°C unless otherwise noted)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV_{DSS}*	100	-	-	V	V_{GS}=0V, I_D=250μA
$V_{GS(th)}$	1.0	-	2.5		V_{DS}=V_{GS}, I_D=250μA
I_{GSS}	-	-	±10	μA	V_{GS}=±16V, V_{DS}=0V
I_{DSS}	-	-	1		V_{DS}=80V, V_{GS}=0V
	-	-	5		V_{DS}=80V, V_{GS}=0V, Tj=55℃
$R_{DS(ON)}$*	-	2.8	5.6	Ω	I_D=100mA, V_{GS}=10V
	-	3.0	7.0		I_D=100mA, V_{GS}=4.5V
G_{FS}	100	-	-	mS	V_{DS}=10V, I_D=100mA
Dynamic					
C_{iss}	-	26	39	pF	V_{DS}=25V, V_{GS}=0V, f=1MHz
C_{oss}	-	11	16		
C_{rss}	-	3.1	4.6		
*$t_{d(on)}$	-	4.2	6.3	ns	V_{DS}=50V, I_D=0.26A, V_{GS}=10V, R_G=6Ω
*t_r	-	15.2	22.8		
*$t_{d(off)}$	-	10.2	15.3		
*t_f	-	18.8	28.2		
*Qg	-	1.85	2.8	nC	V_{DS}=80V, I_D=0.26A, V_{GS}=10V
*Qgs	-	0.72	1.1		
*Qgd	-	0.17	0.26		
Body Diode					
*V_{SD}	-	0.9	1.3	V	I_S=0.34A

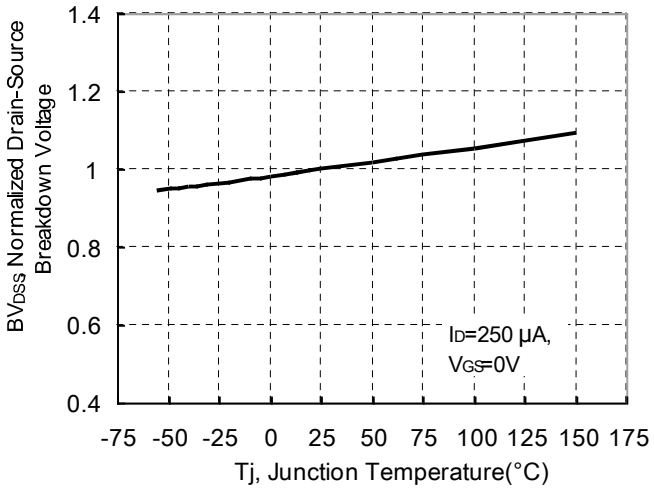
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Typical Characteristics

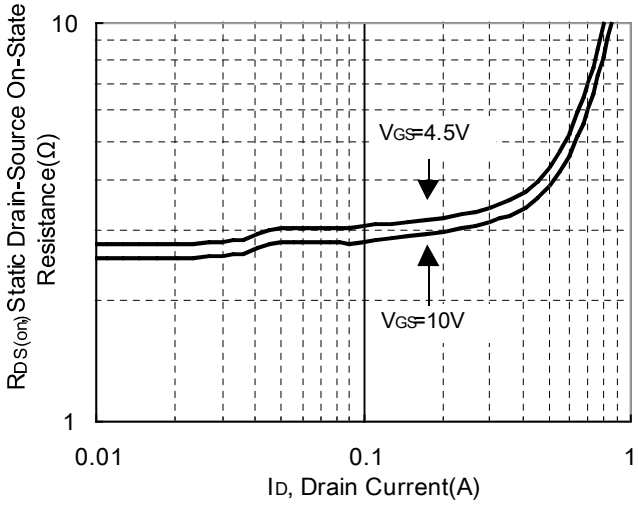
Typical Output Characteristics



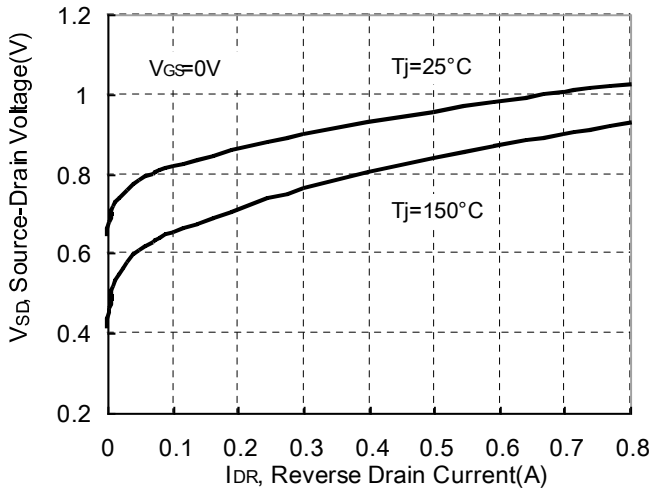
Brekdown Voltage vs Junction Temperature



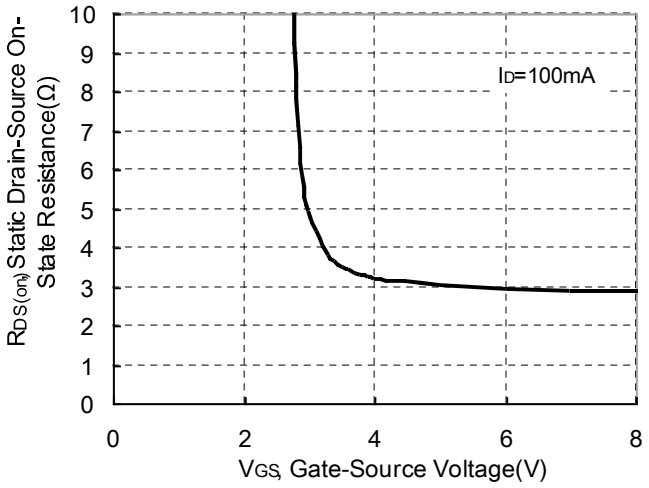
Static Drain-Source On-State resistance vs Drain Currer



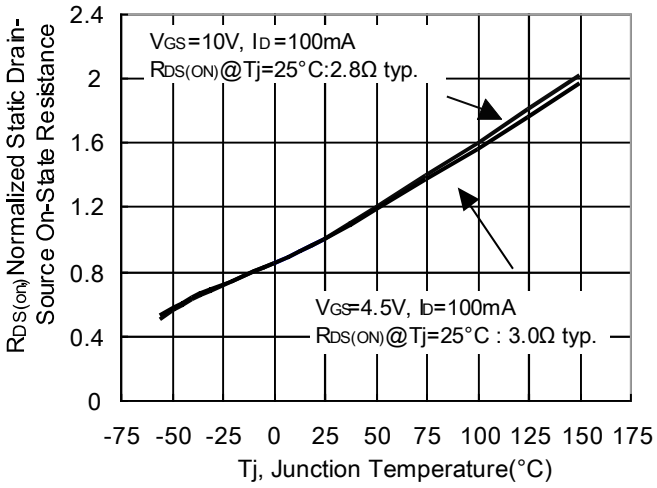
Reverse Drain Current vs Source-Drain Voltage



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

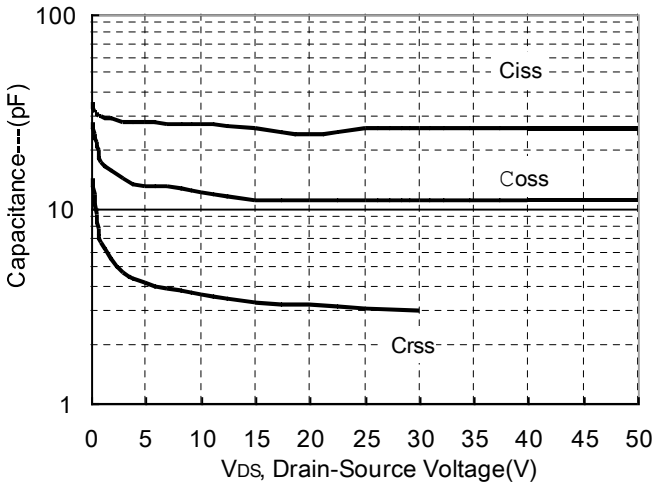


Drain-Source On-State Resistance vs Junction Tempearture

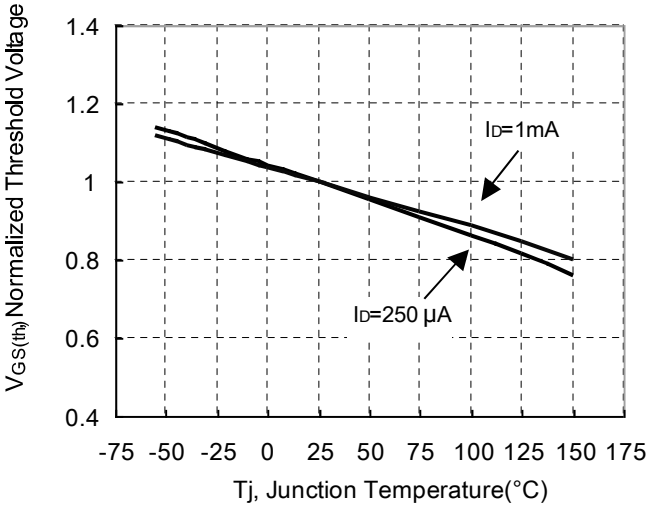


Typical Characteristics(Cont.)

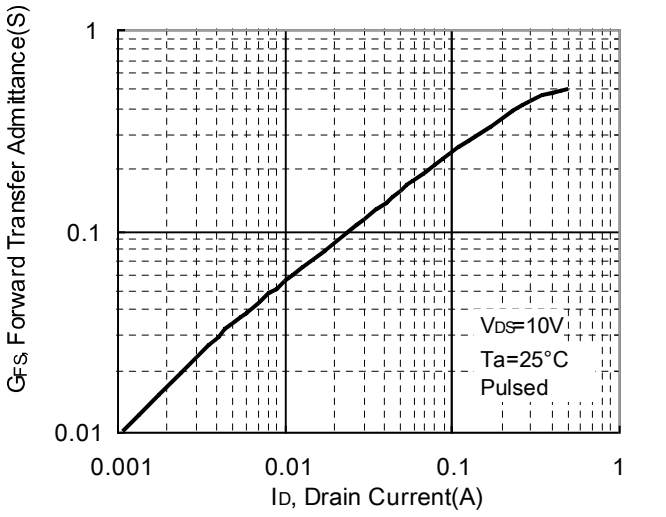
Capacitance vs Drain-to-Source Voltage



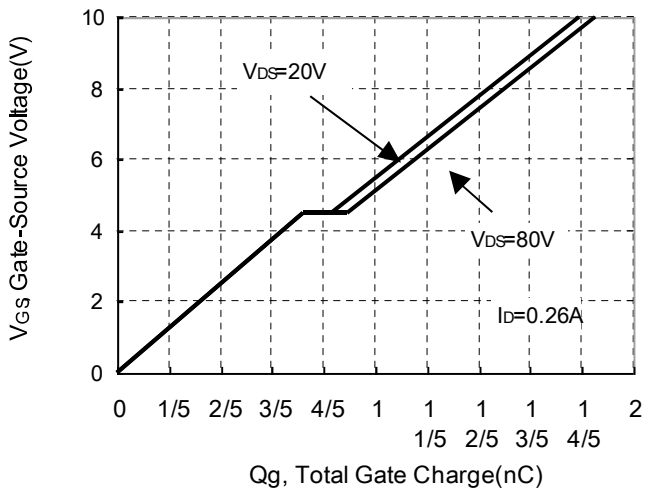
Threshold Voltage vs Junction Tempearture



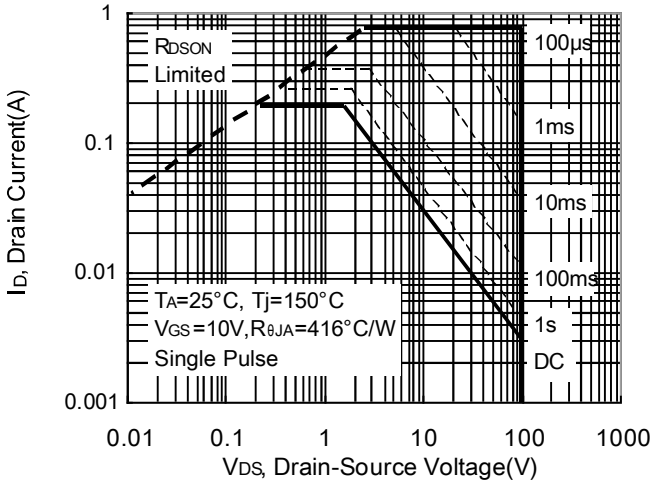
Forward Transfer Admittance vs Drain Current



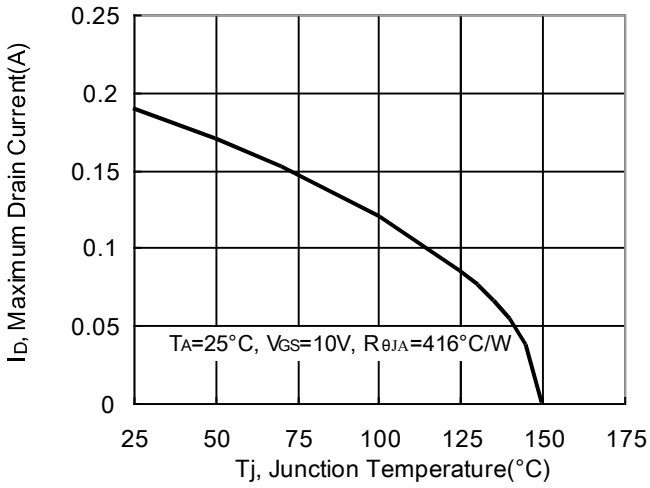
Gate Charge Characteristics



Maximum Safe Operating Area

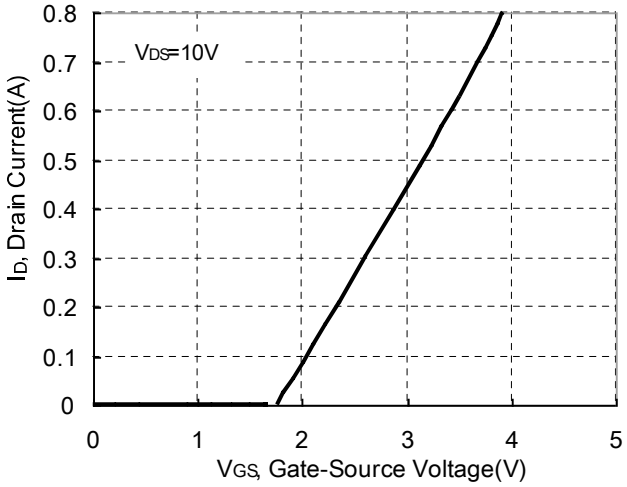


Maximum Drain Current vs Junction Temperature

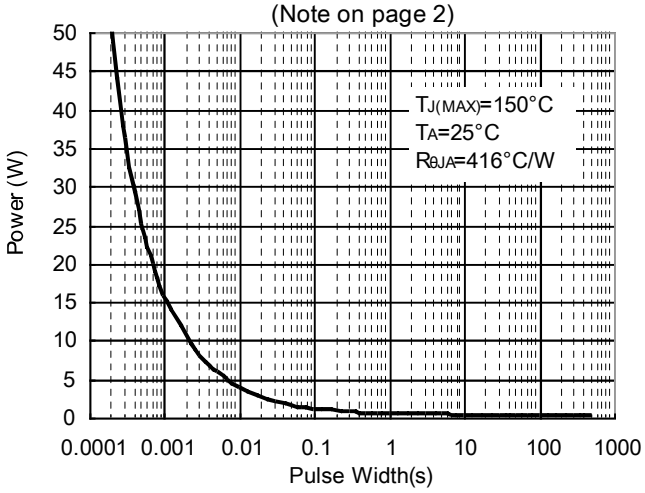


Typical Characterist ics(Cont.)

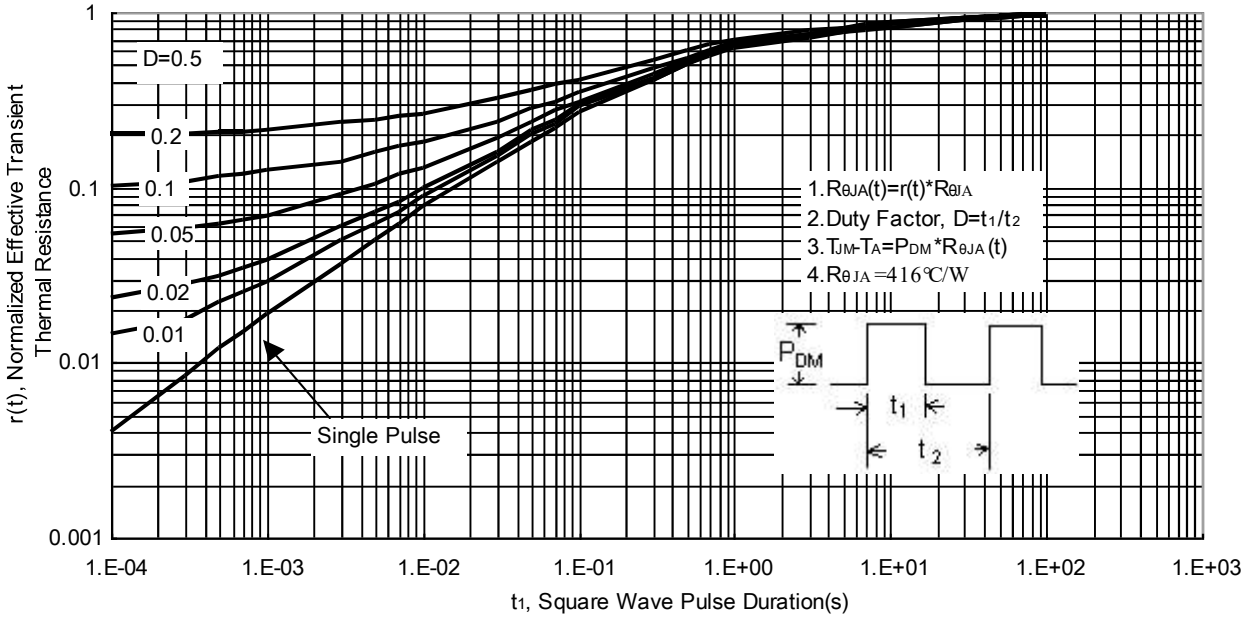
Typical Transfer Characteristics



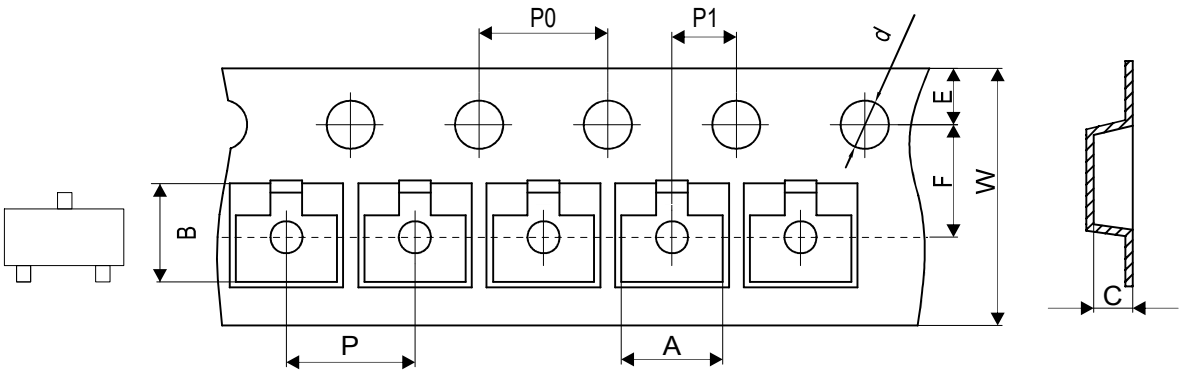
Single Pulse Power Rating, Junction to Ambient
(Note on page 2)

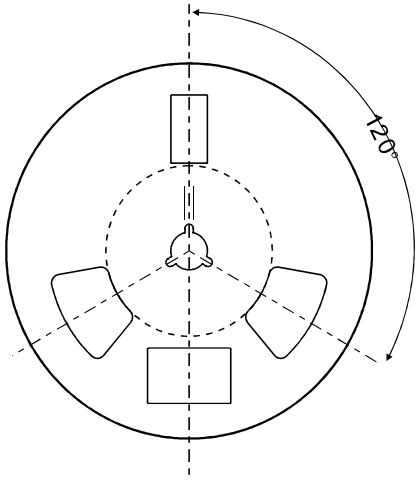


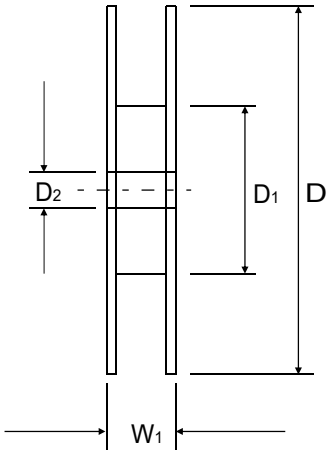
Transient Thermal Response Curves

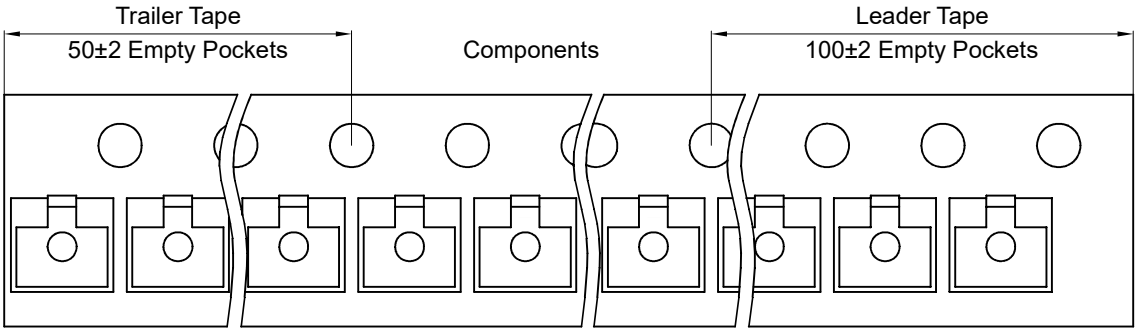


Reel Taping Specification









	SYMBOL	A	B	C	d	D	D_1	D_2
SOT-23	(mm)	See Note 1			1.50 + 0.10 - 0.00	330.00 Max.	50.00 Min.	13.00 ± 0.50
	(inch)				0.059 + 0.004 - 0.000	12.992 Max.	1.969 Min.	0.512 ± 0.020

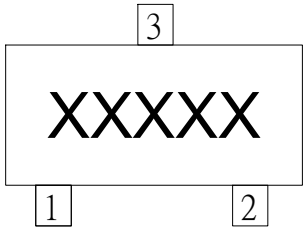
	SYMBOL	E	F	P	P_0	P_1	W	W_1
SOT-23	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	8.30 Max.	14.40 Max.
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	0.327 Max.	0.567 Max.

Note: 1. A, B, and C are determined by component size. The clearance between the components and the cavity must be within 0.05mm min. to 0.50mm max.

Company reserves the right to improve product design , functions and reliability without notice.

Marking Code

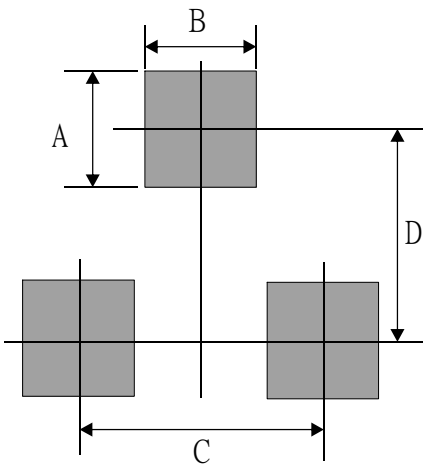
Part Number	Marking Code
BSS123T-HF	123BK



XXXXX = Product type marking code

Suggested PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.90	0.035
B	0.80	0.031
C	1.90	0.075
D	2.02	0.080



Standard Packaging

Case Type	Qty Per Reel	Reel Size
	(Pcs)	(inch)
SOT-23	3,000	7