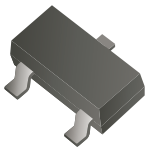


BSS123T-P2-HF

N-Channel
RoHS Device
Halogen Free



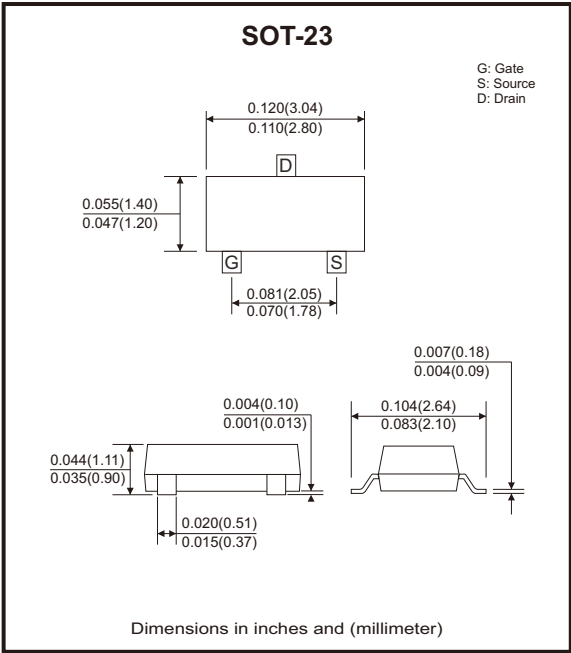
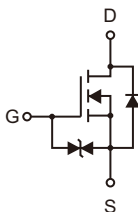
Features

- High density cell design for low $R_{DS(ON)}$.
- Voltage controlled small signal switch.
- Rugged and reliable.
- ESD protected.

Mechanical data

- Case: SOT-23, molded plastic.
- Terminals: Solderable per MIL-STD-750, method 2026.
- Mounting position: Any.

Circuit Diagram



Maximum Ratings (at $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	100	V
Gate-source voltage	V_{GS}	± 20	V
Continuous drain current	I_D	0.17	A
Power dissipation	P_D	0.35	W
Thermal resistance junction to ambient	$R_{\theta JA}$	357	$^{\circ}\text{C/W}$
Operating junction temperature range	T_J	-55 to +150	$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics (at $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source breakdown voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	100			V
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.5		2.5	V
Gate-body leakage current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 10	μA
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 80V, V_{GS} = 0V$			1	μA
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 0.25A$			6	Ω
	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 0.2A$			9	Ω
Diode forward voltage	V_{SD}	$V_{GS} = 0V, I_S = 0.4A$			1.3	V
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$		60		pF
Output capacitance	C_{oss}			15		
Reverse transfer capacitance	C_{rss}			6		
Switching Characteristics						
Total gate charge	Q_g	$V_{DS} = 10V, V_{GS} = 10V, I_D = 0.22A$			2	nC
Gate-source charge	Q_{gs}				0.25	
Gate-drain charge	Q_{gd}				0.4	
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 30V, V_{GS} = 10V, R_G = 50\Omega, I_D = 0.28A$			8	ns
Turn-on rise time	t_r				8	
Turn-off delay time	$t_{d(off)}$				13	
Turn-off fall time	t_f				16	

Typical Rating and Characteristic Curves (BSS123T-P2-HF)

Fig.1 - Output Characteristics

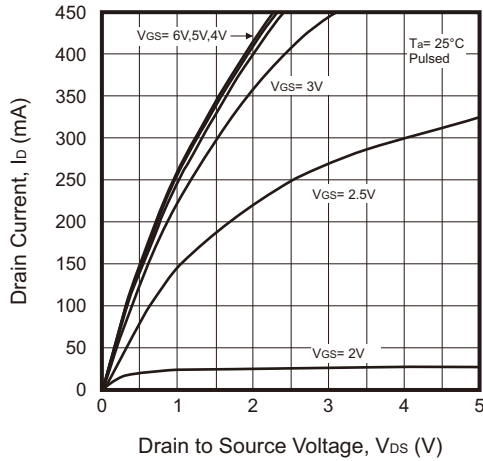


Fig.2 - Transfer Characteristics

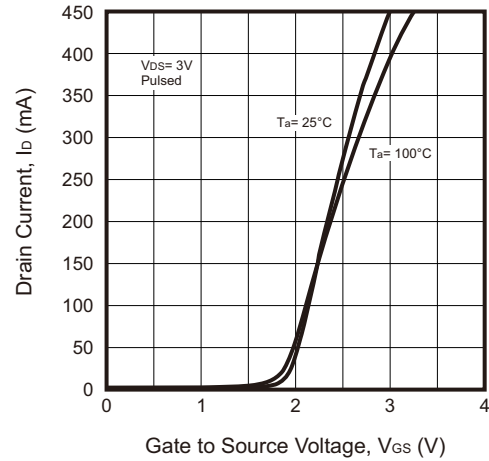


Fig.3 - On-Resistance vs. Drain Current

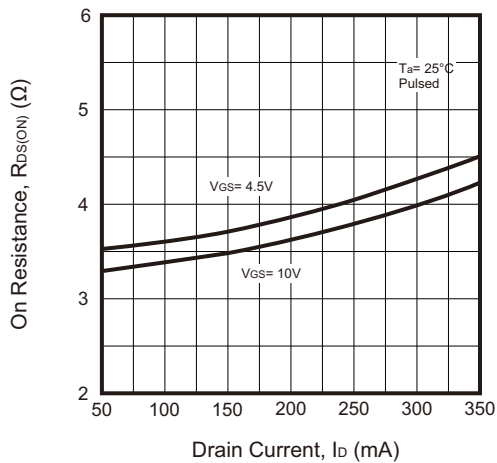


Fig.4 - On-Resistance vs. Gate to Source Voltage

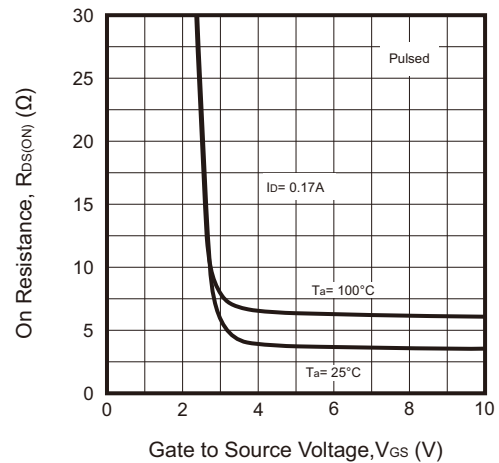


Fig.6 - I_S — V_{SD}

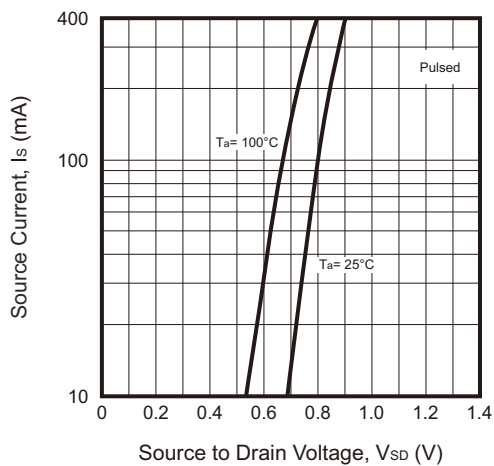
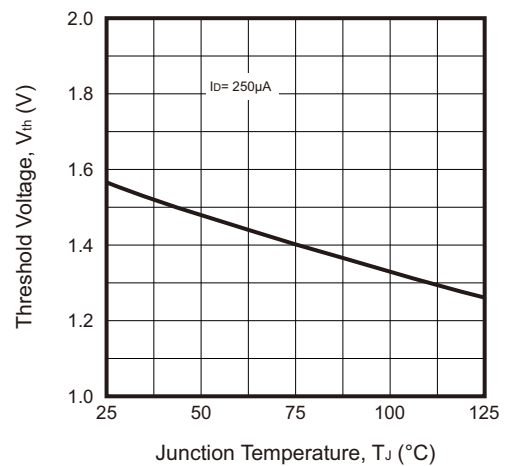
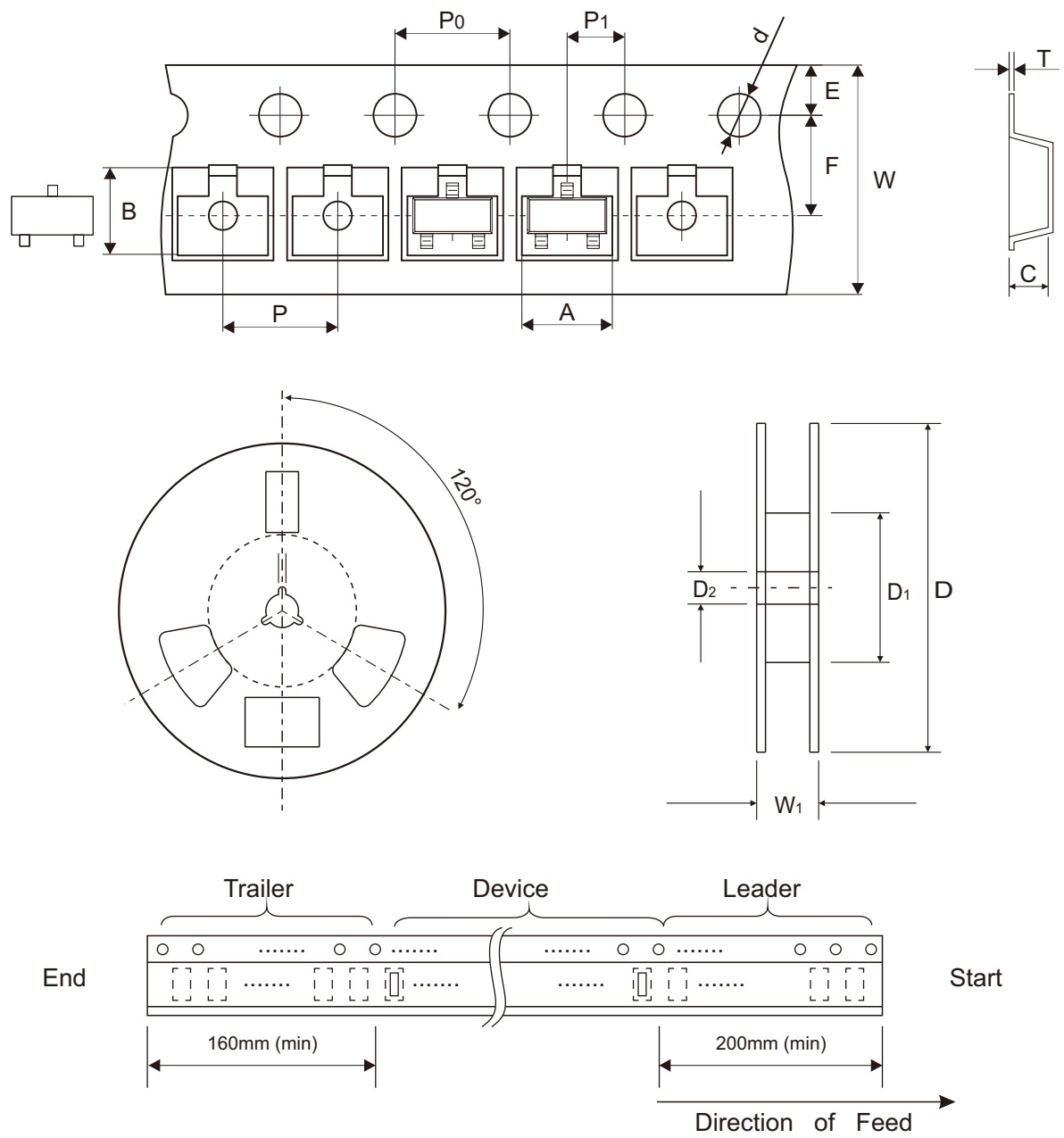


Fig.7 - Threshold Voltage



Reel Taping Specification

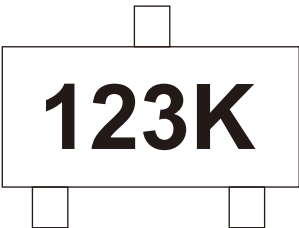


SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 + 0.08 - 0.10	1.50 + 0.10 - 0.00	178.00 ± 2.00	50.00 ± 0.50	13.00 ± 0.25
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 + 0.003 - 0.004	0.059 + 0.004 - 0.000	7.008 ± 0.079	1.969 ± 0.020	0.512 ± 0.010

SOT-23	SYMBOL	E	F	P	P0	P1	T	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.20 ± 0.02	8.00 + 0.30 - 0.10	9.50 ± 0.50
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.008 ± 0.001	0.315 + 0.012 - 0.004	0.374 ± 0.020

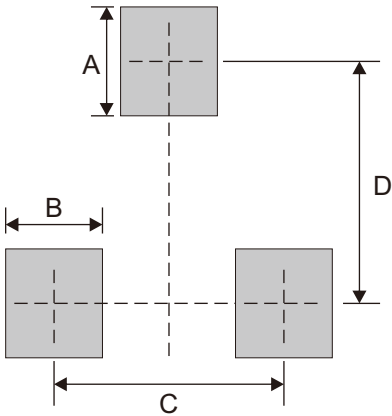
Marking Code

Part Number	Marking Code
BSS123T-P2-HF	123K



Suggested P.C.B. PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.90	0.035
B	0.80	0.031
C	1.90	0.075
D	2.00	0.079



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-23	3,000	7