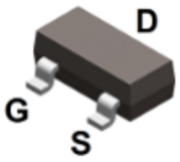
BSS84/BSS84-3L/BSS84W

P-Channel Enhancement Mode MOSFET

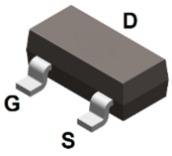
Features

- Advanced trench technology
- High-speed switching
- Drive circuits can be simple
- Parallel use is easy



BSS84

SOT-23



BSS84-3L

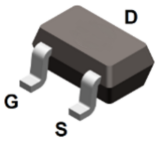
SOT-23-3L

Typical Applications

- P-channel enhancement mode effect transistor
- Switching application

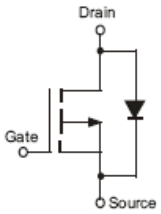
Mechanical Data

- Case: SOT-23, SOT-23-3L, SOT-323
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208



BSS84W

SOT-323



Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BSS84	SOT-23	3000 pcs / Tape & Reel	SP
BSS84-3L	SOT-23-3L	3000 pcs / Tape & Reel	SP
BSS84W	SOT-323	3000 pcs / Tape & Reel	K84

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter		Symbol	Value	Unit
Drain-to-Source Voltage		V_{DSS}	-50	V
Gate-to-Source Voltage		V_{GSS}	±12	V
Continuous Drain Current (T_A = 25°C) *1		I_D	-130	mA
Pulsed Drain Current (t_p = 10μs, T_A = 25°C)		I_{DM}	-520	mA
Single Pulse Avalanche Energy *3		E_{AS}	0.4	mJ
Power Dissipation (T_A = 25°C) *1	SOT-23	P_D	0.36	W
	SOT-23-3L		0.36	
	SOT-323		0.2	
Operating Junction Temperature Range		T_J	-55 ~ +150	°C
Storage Temperature Range		T_{STG}	-55 ~ +150	°C

Thermal Characteristics

Parameter		Symbol	Value	Unit
Thermal Resistance Junction-to-Air *1	SOT-23, SOT-23-3L	$R_{\theta JA}$	350	°C/W
	SOT-323		625	

Electrical Characteristics (@ T_A = 25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
V_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = -250μA	-50	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = -50V, V_{GS} = 0V	-	-	-1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS} = ±20V, V_{DS} = 0V	-	-	±10	μA
On Characteristics						
$R_{DS(ON)}$	Drain-Source On-resistance *2	V_{GS} = -5V, I_D = -0.1A	-	2.1	10	Ω
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = -1mA	-0.8	-1.5	-2	V
R_G	Gate Resistance	V_{GS} = 0V, f = 1MHz	-	84	-	Ω
Dynamic Characteristics						
C_{ISS}	Input Capacitance	V_{GS} = 0V V_{DS} = -20V f = 1.0MHz	-	48	-	pF
C_{OSS}	Output Capacitance		-	15	-	
C_{RSS}	Reverse Transfer Capacitance		-	3	-	
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time *4	V_{DD} = 30V, I_D = 0.2A V_{GS} = 10V, R_G = 25Ω R_L = 150Ω	-	6	-	nS
t_r	Turn-on Rise Time *4		-	5	-	
$t_{d(off)}$	Turn-Off Delay Time *4		-	25	-	
t_f	Turn-Off Fall Time *4		-	15	-	
Q_G	Total Gate-Charge	V_{DD} = -30V V_{GS} = -4.5V I_D = -0.2A	-	2.1	-	nC
Q_{GS}	Gate to Source Charge		-	0.78	-	
Q_{GD}	Gate to Drain (Miller) Charge		-	0.4	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage *2	I_S = -0.26A, V_{GS} = 0 V	-	-1.15	-1.4	V

Notes:

1、 Surface mounted on FR4 board, and standard footprint, t ≤ 10 sec

2、 The data tested by pulsed, pulse width ≤ 300μs, duty cycle ≤ 2%

3、 The E_{AS} data shows Max. rating. The test condition is V_{DD} = -30V, V_{GS} = -10V, L = 0.1mH

4、 Guaranteed by design, not subject to production

Ratings and Characteristics Curves (@ T_A = 25°C unless otherwise specified)

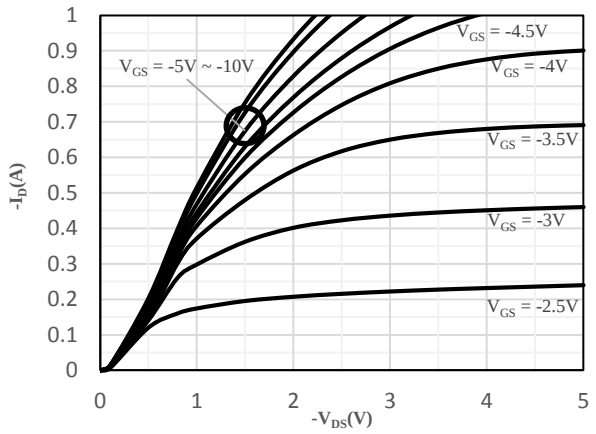


Fig 1 Typical Output Characteristics

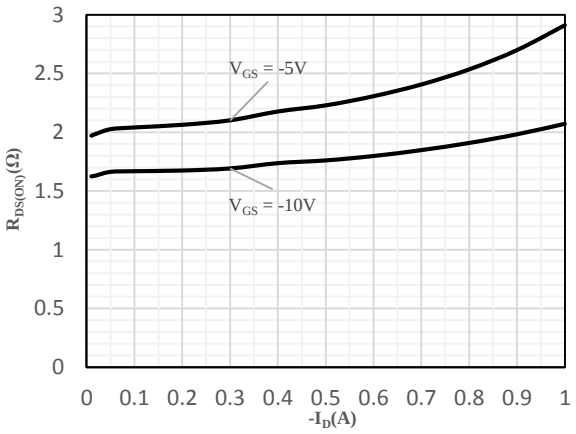


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

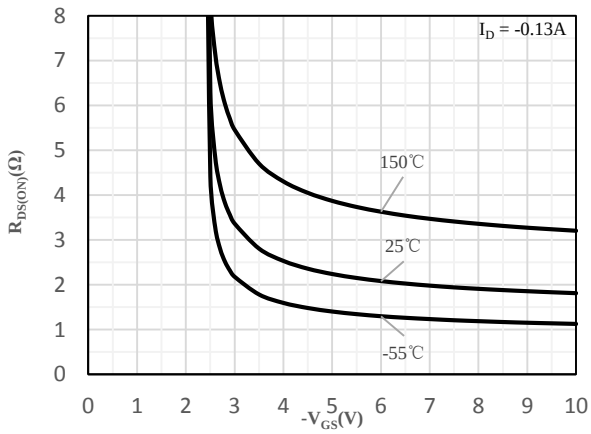


Fig 3 On-Resistance vs. Gate-Source Voltage

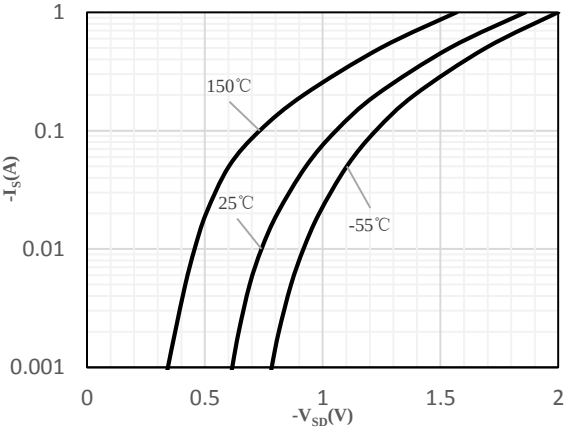


Fig 4 Body-Diode Characteristics

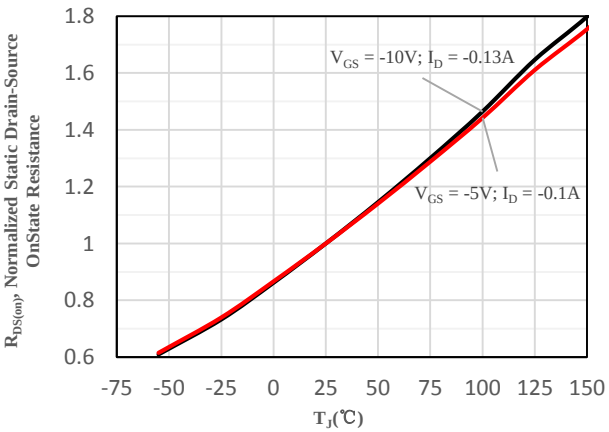


Fig 5 Normalized On-Resistance vs. Junction Temperature

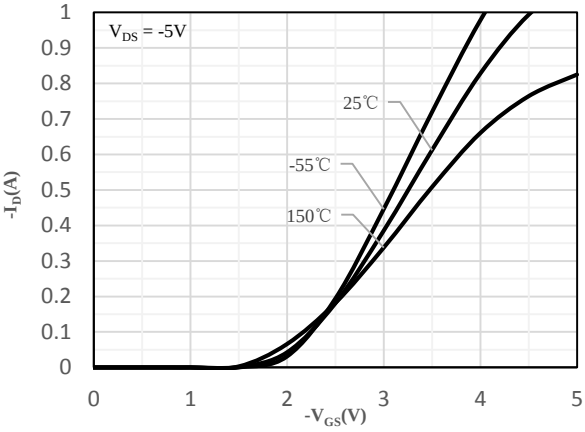


Fig 6 Transfer Characteristics

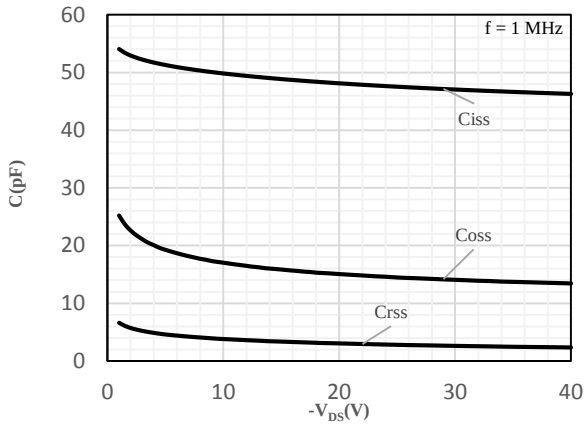


Fig 7 Capacitance Characteristics

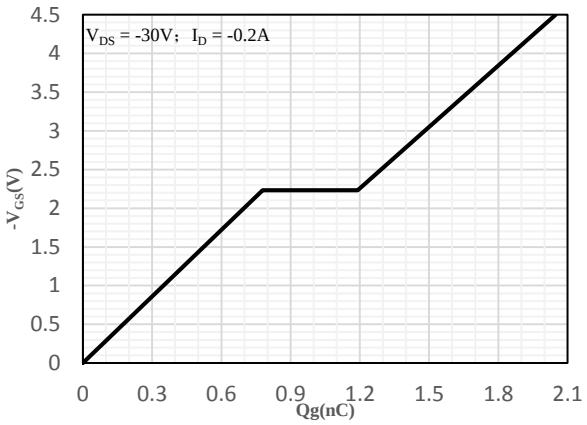


Fig 8 Gate-Charge Characteristics

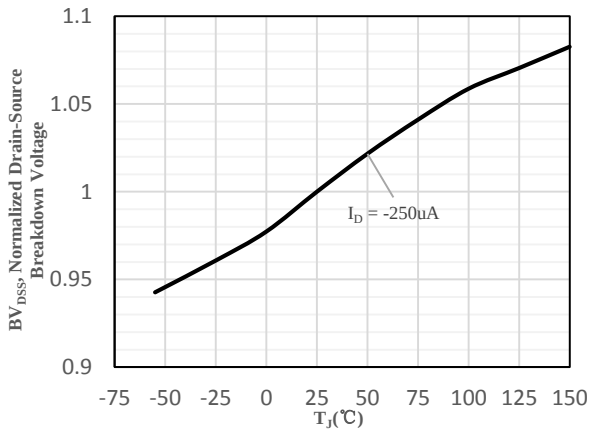


Fig 9 Normalized Breakdown Voltage vs. Junction Temperature

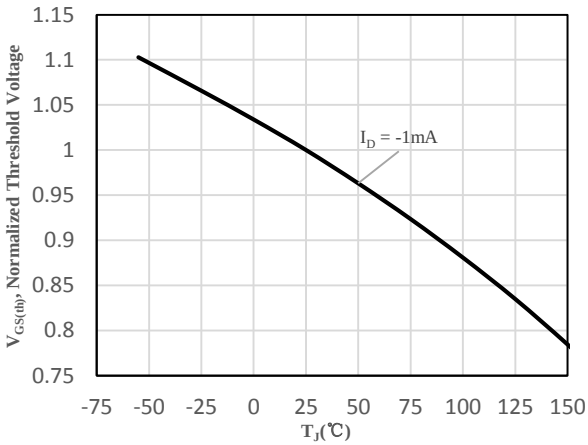


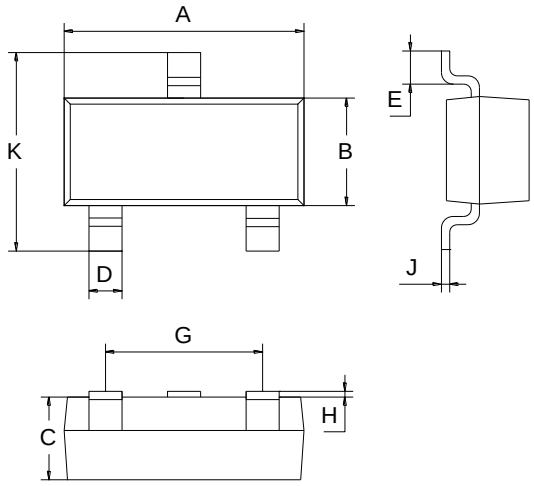
Fig 10 Normalized $V_{GS(th)}$ vs. Junction Temperature

BSS84/BSS84-3L/BSS84W

P-Channel Enhancement Mode MOSFET

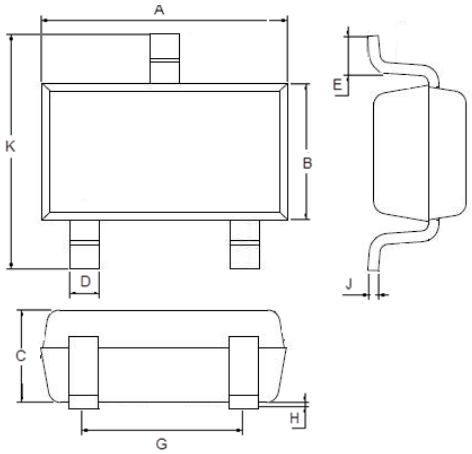
Package Outline Dimensions (Unit: mm)

SOT-23



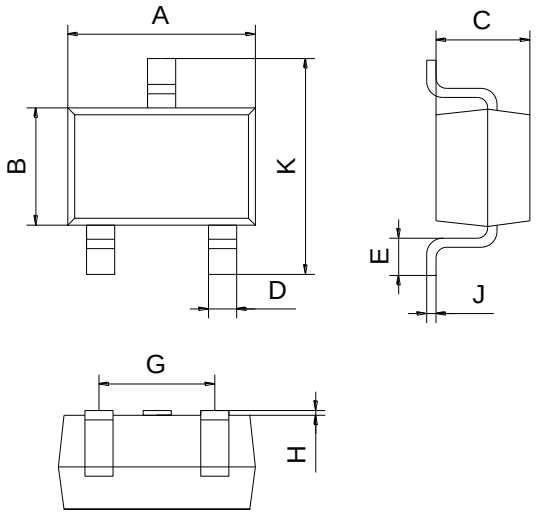
SOT-23		
Dimension	**Min.**	**Max.**
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60

SOT-23-3L



SOT-23-3L		
Dimension	**Min.**	**Max.**
A	2.80	3.00
B	1.50	1.70
C	1.00	1.20
D	0.35	0.45
E	0.35	0.55
G	1.80	2.00
H	0.02	0.10
J	0.10	0.20
K	2.60	3.00

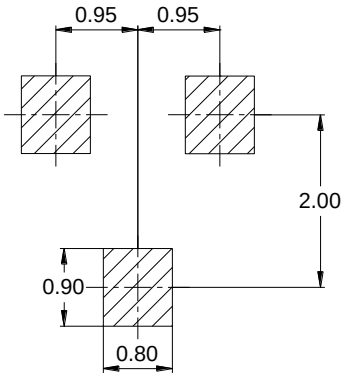
SOT-323



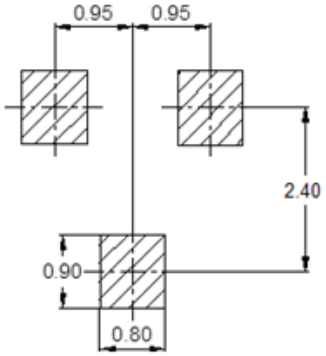
SOT-323		
Dimension	**Min.**	**Max.**
A	2.00	2.20
B	1.15	1.35
C	0.90	1.10
D	0.15	0.35
E	0.25	0.40
G	1.20	1.40
H	0.02	0.10
J	0.05	0.15
K	2.20	2.40

Mounting Pad Layout (Unit: mm)

SOT-23



SOT-23-3L



SOT-323