

P-CHANNEL MOSFET

FEATURES

- Energy efficient
- Low threshold voltage
- High-speed switching

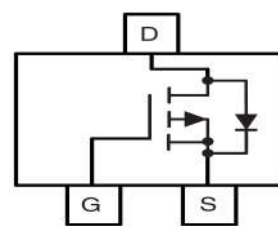
MECHANICAL DATA

- Case: SOT-23
- Case material: Molded plastic. UL flammability
- Classification rating: 94V-0
- Weight: 0.008 grams (approximate)

Marking: B84



SOT-23



Equivalent circuit

MAXIMUM RATINGS (T_A= 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-source voltage	V _{DS}	-50	V
Gate-source voltage	V _{GS}	±20	V
Continuous drain current	I _D	-0.13	A
Pulsed drain current @t _p <10 μs (note 1)	I _{DM}	-0.52	A
Power dissipation	P _D	225	mW
Thermal resistance from junction to ambient (note 2)	R _{θJA}	556	°C/W
Junction temperature	T _J	+150	°C
Storage temperature	T _{STG}	-55~+150	°C

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ.	Max	Unit	Conditions
Drain-source breakdown voltage	V _{(BR)DSS}	-50			V	V _{GS} = 0V, I _D = -250μA
Zero gate voltage drain current	I _{DSS}			-15	μA	V _{DS} = -50V, V _{GS} = 0V
				-0.1	μA	V _{DS} = -25V, V _{GS} = 0V
Gate-body leakage current	I _{GSS}			±5	μA	V _{GS} = ±20V, V _{DS} = 0V
Gate threshold voltage (note 3)	V _{GS(th)}	-0.9		-2	V	V _{DS} = V _{GS} , I _D = -250μA
Drain-source on-resistance (note 3)	R _{DS(on)}			10	Ω	V _{GS} = -5V, I _D = -0.1A
				8	Ω	V _{GS} = -10V, I _D = -0.1A
Forward transconductance (note 1)	g _{FS}	50			mS	V _{DS} = -25V; I _D = -100mA
Input capacitance	C _{iss}		30		pF	V _{DS} = 5V, V _{GS} = 0V, f = 1MHz
Output capacitance	C _{oss}		10		pF	
Reverse transfer capacitance	C _{rss}		5		pF	
Turn-on delay time	t _{d(on)}		2.5		ns	V _{DD} = -15V, R _L = 50Ω, I _D = -2.5A
Turn-on rise time	t _r		1		ns	
Turn-off delay time	t _{d(off)}		16		ns	
Turn-off fall time	t _f		8		ns	
Continuous current	I _S			-0.13	A	
Pulsed current	I _{SM}			-0.52	A	
Diode forward voltage (note 3)	V _{SD}			-2.2	V	I _S = -0.13A, V _{GS} = 0V

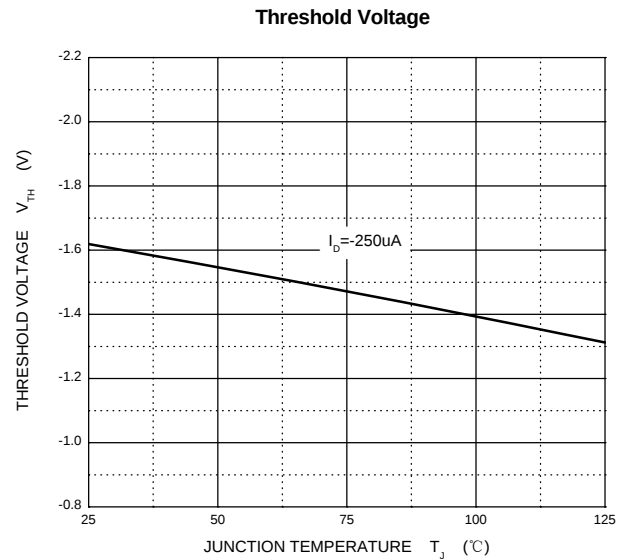
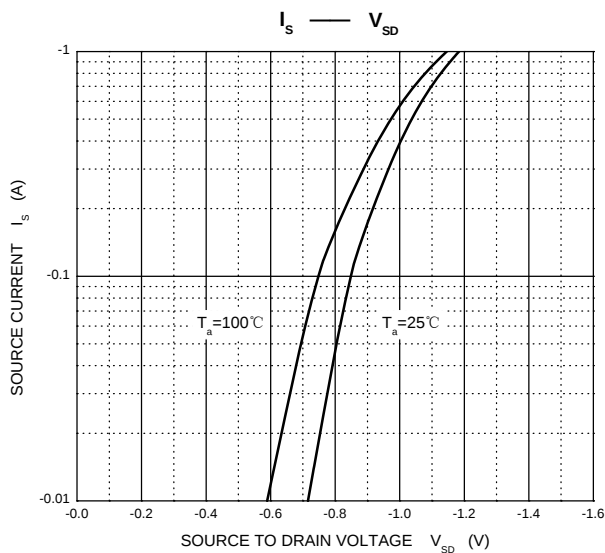
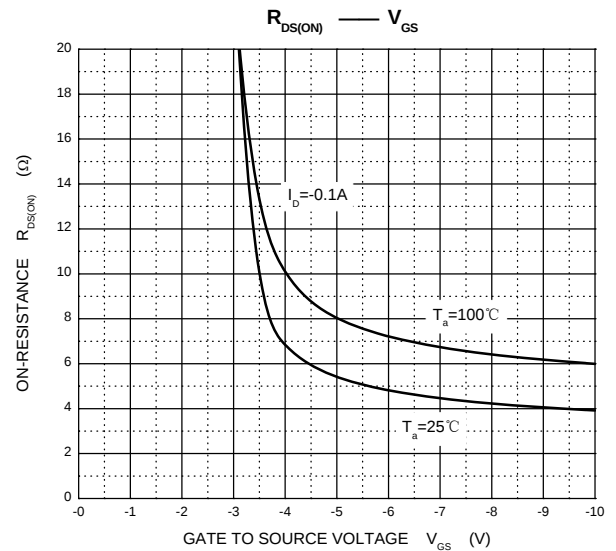
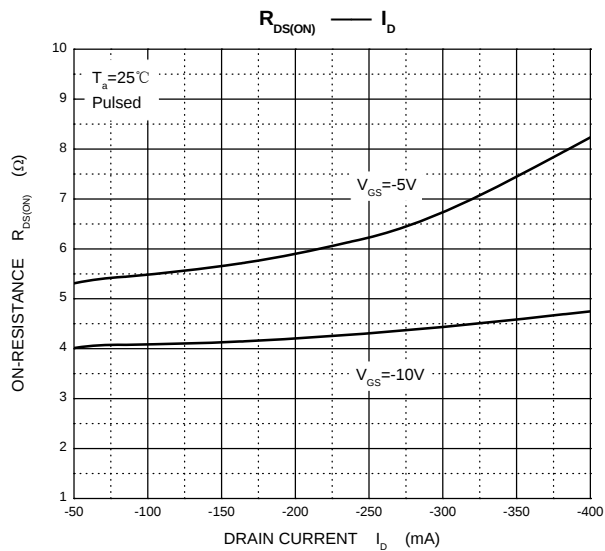
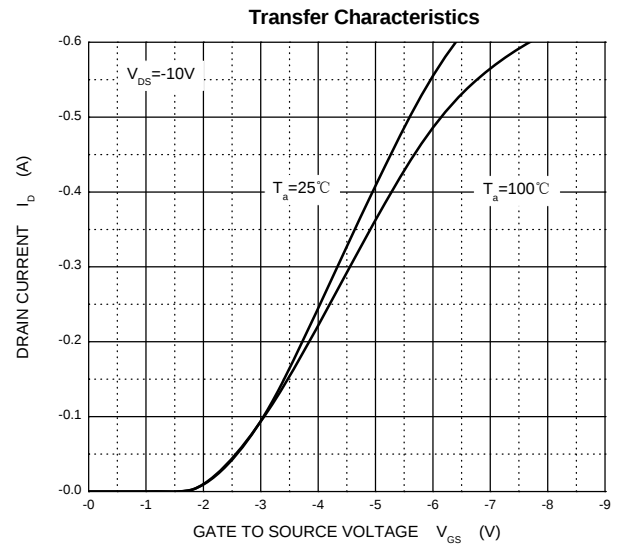
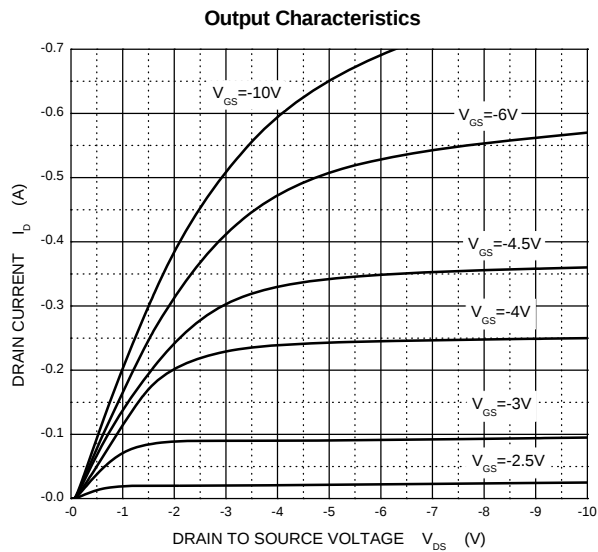
Notes : 1. Repetitive rating : Pulse width limited by junction temperature.

2. Surface mounted on FR4 board , t_s ≤ 10s.

3. Pulse Test : Pulse Width ≤ 300μs, Duty Cycles ≤ 2%.

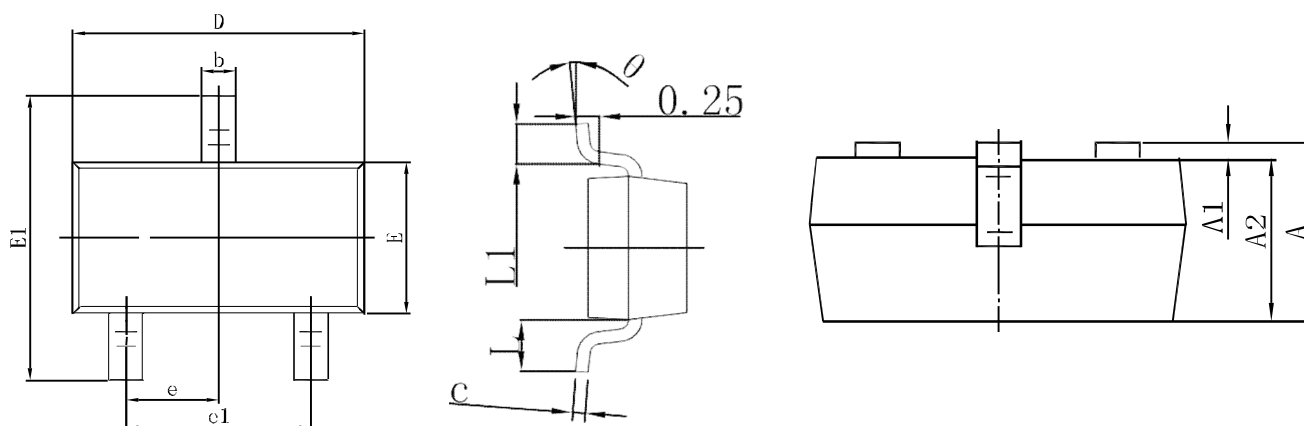
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TYPICAL CHARACTERISTICS



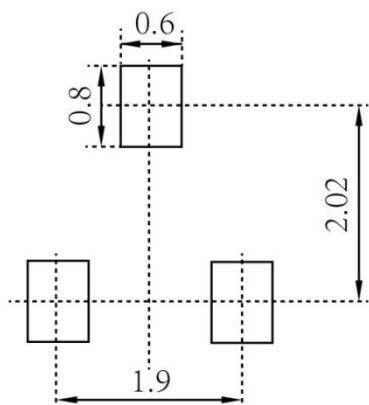
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SOT-23 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

SOT-23 SUGGESTED PAD LAYOUT



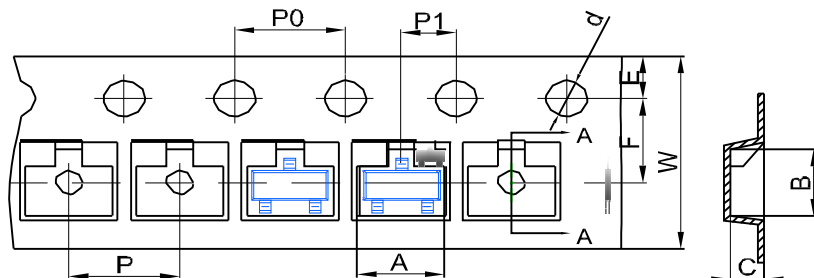
Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference purposes only

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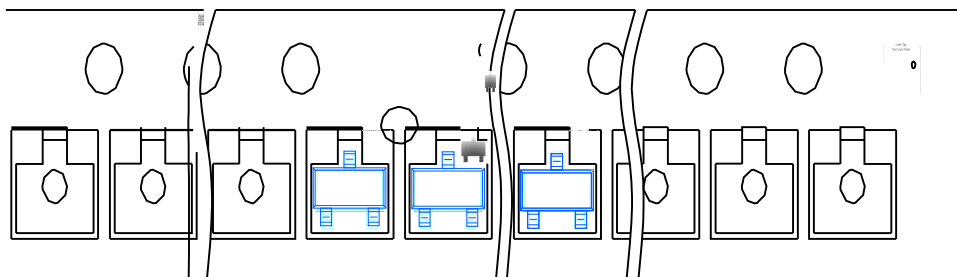
SOT-23 TAPE AND REEL

SOT-23 Embossed Carrier Tape

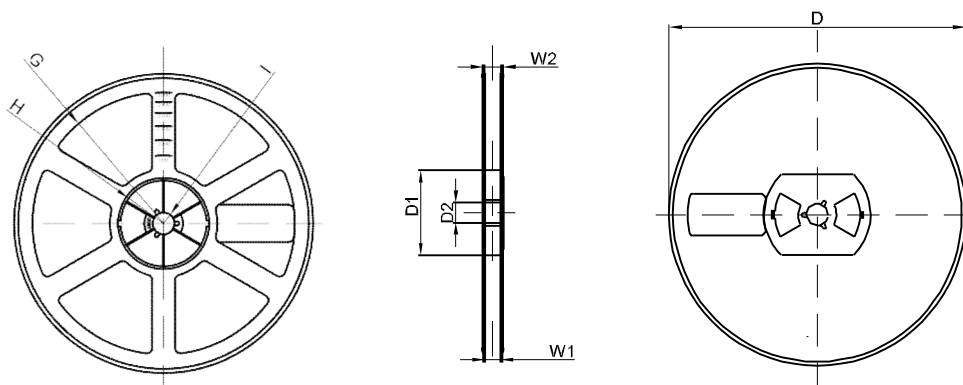


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

SOT-23 Tape Leader and Trailer



SOT-23 Reel



	DIMENSIONS ARE IN MILLIMETER							
REEL OPTION	D	D1	D2	G	H	I	W1	W2
7" DIA	Ø178	54.40	13.00	R78	R25.60	R6.50	9.50	12.30
TOLERANCE	±2	±1	±1	±1	±1	±1	±1	±1