

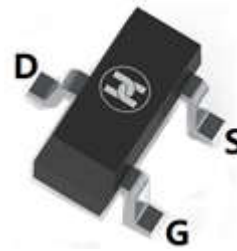
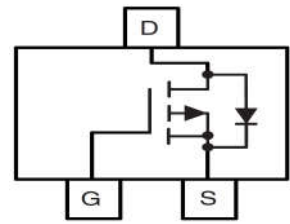
P-CHANNEL MOSFET**FEATURES**

- 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** ($T_A = 25^\circ\text{C}$ 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 @tp < 10 μs (note 1)	I_{DM}	-0.52	A
Power dissipation	P_D	225	mW
Thermal resistance from junction to ambient (note 2)	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Junction temperature	T_J	+150	$^\circ\text{C}$
Storage temperature	T_{STG}	-55~+150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

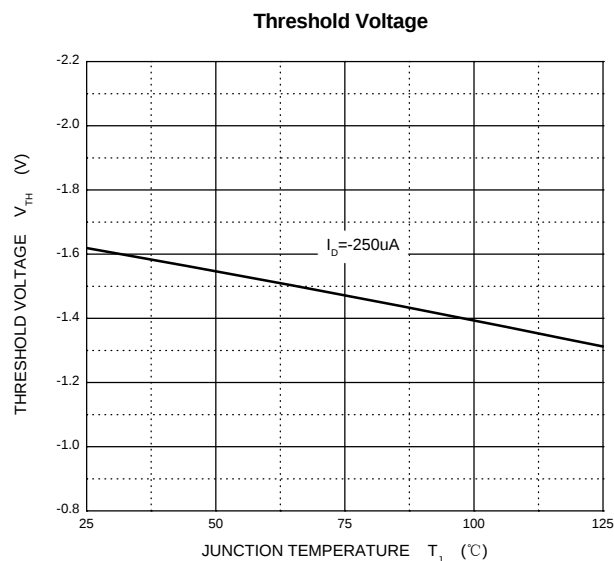
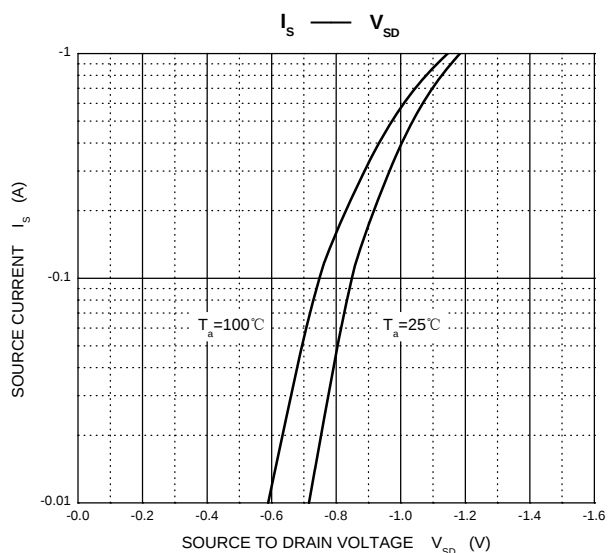
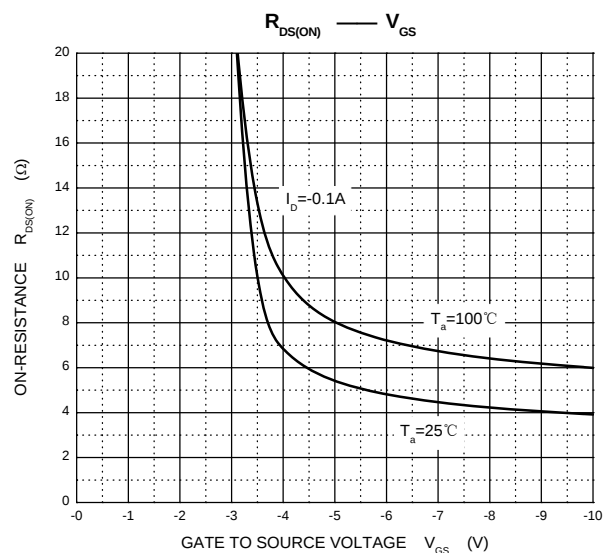
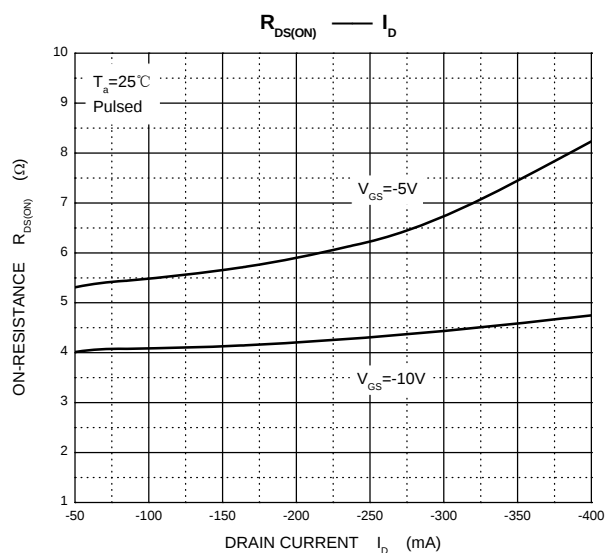
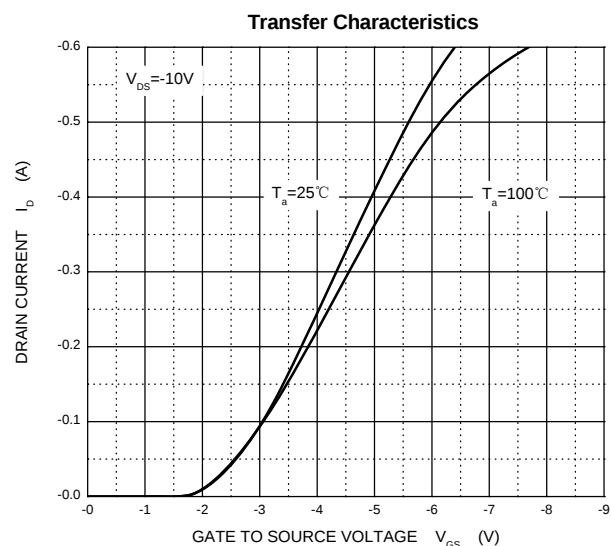
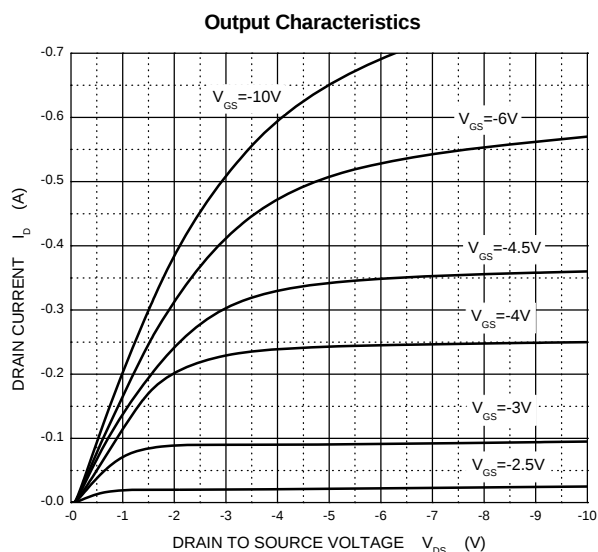
Parameter	Symbol	Min	Typ.	Max	Unit	Conditions
Drain-source breakdown voltage	$V_{(BR)DSS}$	-50			V	$V_{GS} = 0\text{V}, I_D = -250\mu\text{A}$
Zero gate voltage drain current	I_{DSS}			-15	μA	$V_{DS} = -50\text{V}, V_{GS} = 0\text{V}$
				-0.1	μA	$V_{DS} = -25\text{V}, V_{GS} = 0\text{V}$
Gate-body leakage current	I_{GSS}			± 5	μA	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$
Gate threshold voltage (note 3)	$V_{GS(th)}$	-0.9		-2	V	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$
Drain-source on-resistance (note 3)	$R_{DS(on)}$			10	Ω	$V_{GS} = -5\text{V}, I_D = -0.1\text{A}$
				8	Ω	$V_{GS} = -10\text{V}, I_D = -0.1\text{A}$
Forward transconductance (note 1)	g_{FS}	50			mS	$V_{DS} = -25\text{V}; I_D = -100\text{mA}$
Input capacitance	C_{iss}		30		pF	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$
Output capacitance	C_{oss}		10		pF	
Reverse transfer capacitance	C_{rss}		5		pF	
Turn-on delay time	$t_{d(on)}$		2.5		ns	$V_{DD} = -15\text{V}, R_L = 50\Omega, I_D = -2.5\text{A}$
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	$I_S = -0.13\text{A}, V_{GS} = 0\text{V}$

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

2. Surface mounted on FR4 board, $t \leq 10\text{s}$.3. Pulse Test : Pulse Width $\leq 300\mu\text{s}$, Duty Cycles $\leq 2\%$.

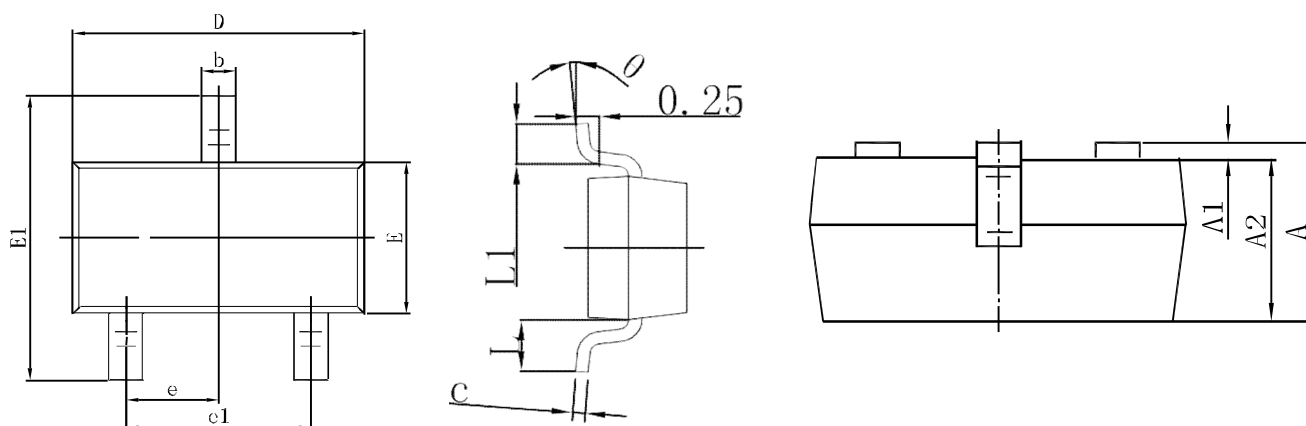
P-CHANNEL MOSFET

TYPICAL CHARACTERISTICS



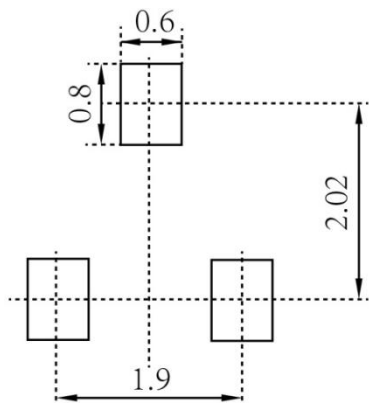
P-CHANNEL MOSFET

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



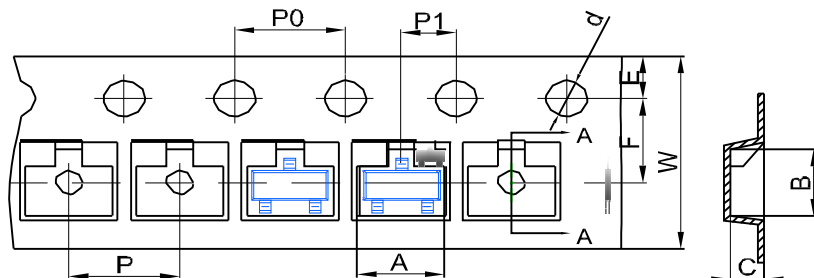
Note:

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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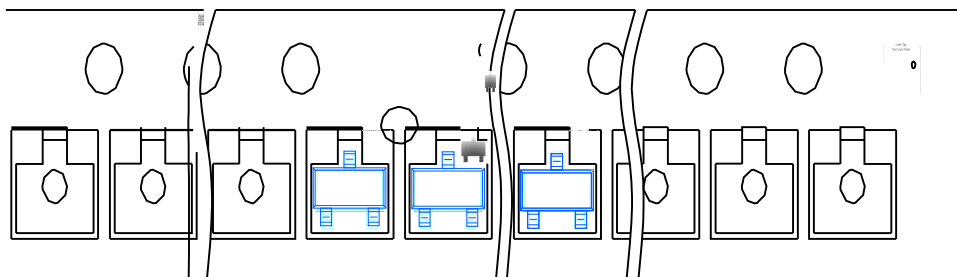
SOT-23 TAPE AND REEL

SOT-23 Embossed Carrier Tape

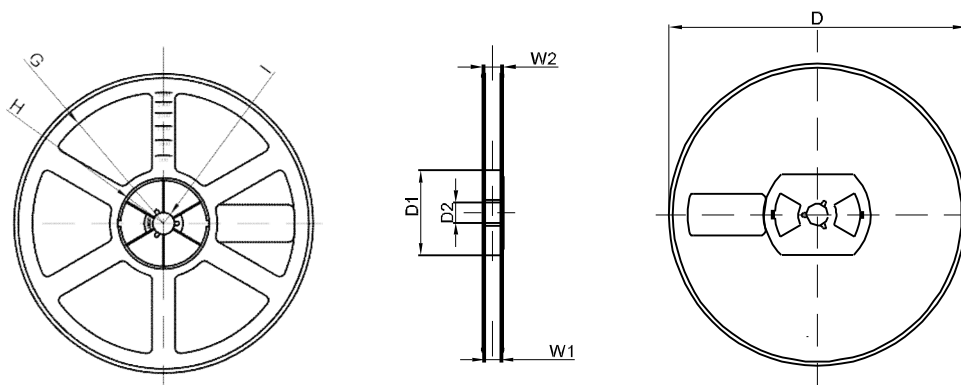


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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