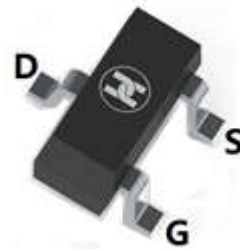
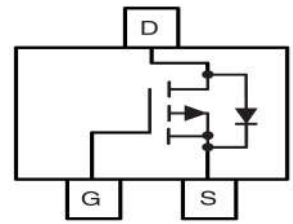


P-CHANNEL MOSFET
FEATURES

- 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: PD


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 @ $t_p < 10 \mu\text{s}$ (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	$^{\circ}\text{C}/\text{W}$
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	$I_S = -0.13\text{A}, V_{GS} = 0\text{V}$

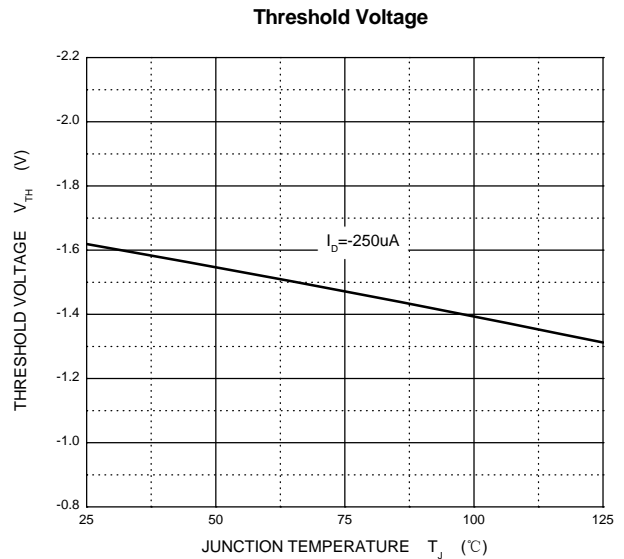
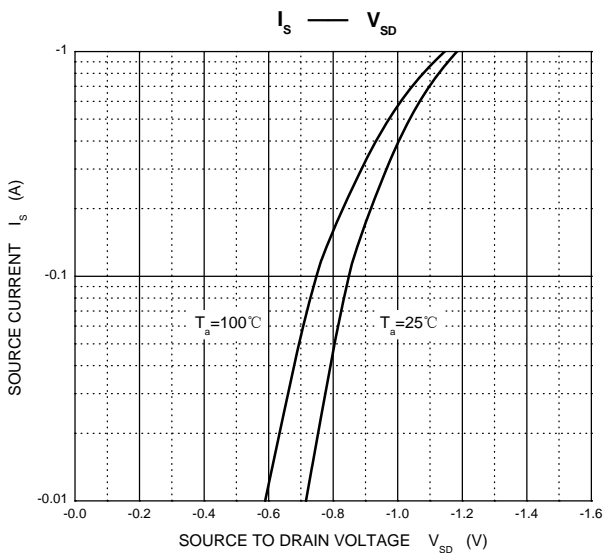
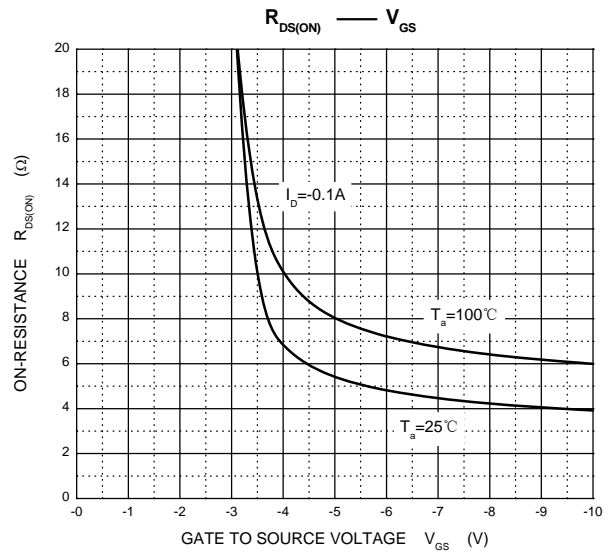
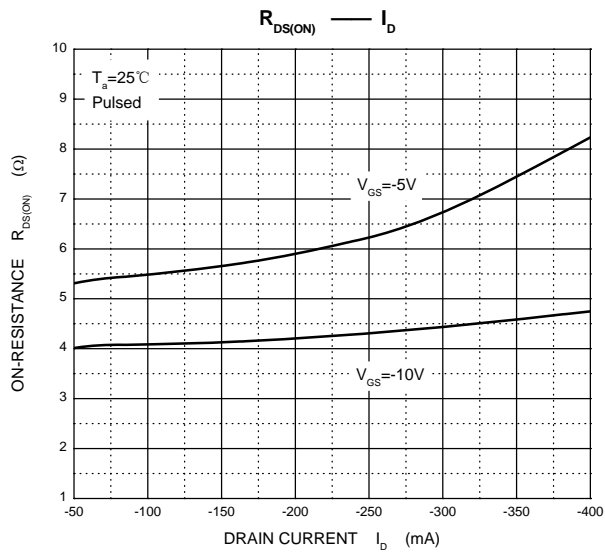
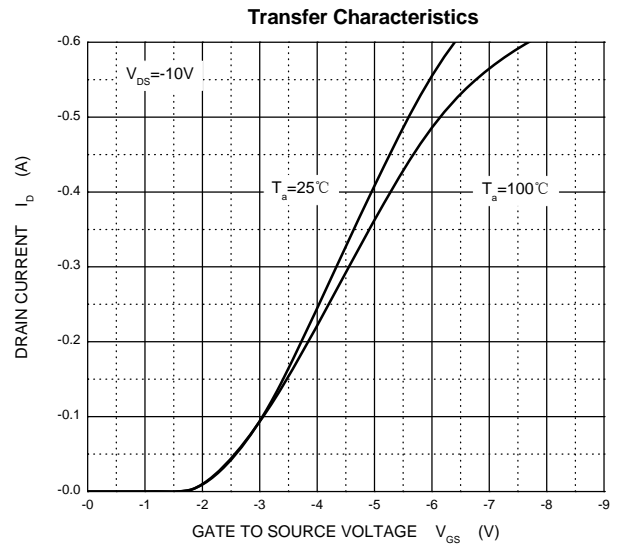
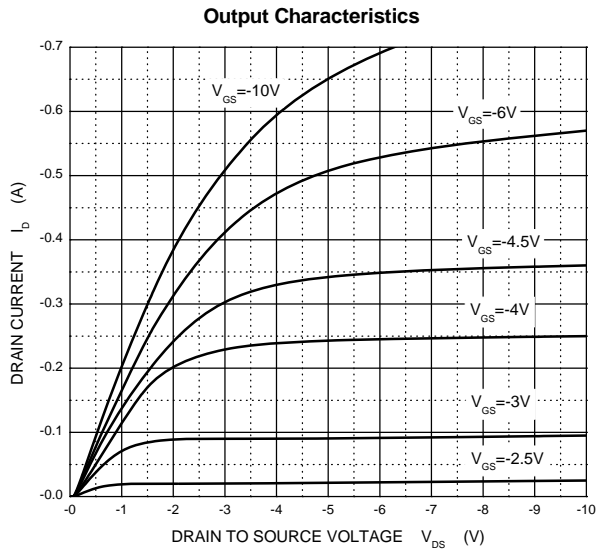
Notes : 1. Repetitive rating : Pulse width limited by junction temperature.

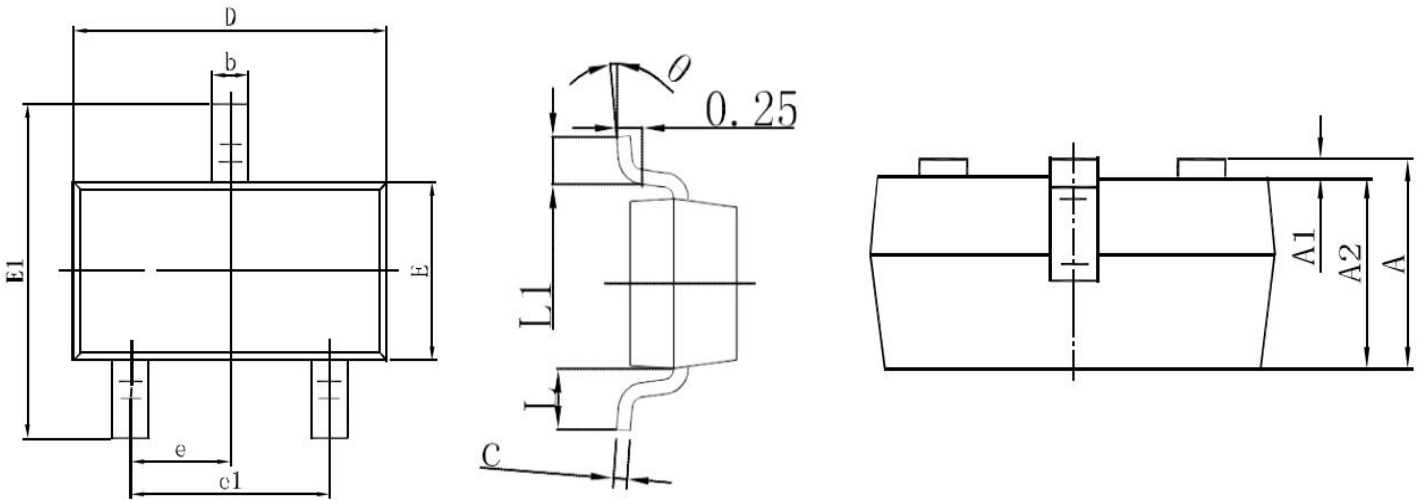
2. Surface mounted on FR4 board , $t \leq 10\text{s}$.

3. Pulse Test : Pulse Width $\leq 300\mu\text{s}$, Duty Cycles $\leq 2\%$.

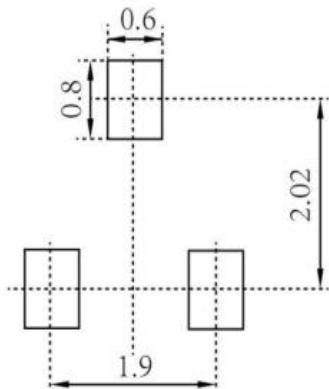
P-CHANNEL MOSFET

TYPICAL CHARACTERISTICS



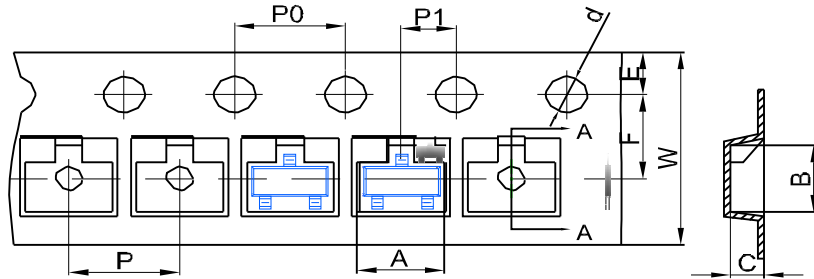
P-CHANNEL MOSFET
SOT-23 Package Outline Dimensions


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.354	0.453
A1	0.000	0.100	0.000	0.039
A2	0.900	1.050	0.354	0.413
b	0.300	0.500	0.118	0.197
c	0.080	1.150	0.031	0.453
D	2.900	3.100	1.142	1.220
E	1.200	1.400	0.472	0.551
E1	2.250	2.550	0.886	1.004
e	0.95REF		0.374REF	
e1	1.800	2.000	0.709	0.787
L	0.55REF		0.215REF	
L1	0.300	0.500	0.118	0.197

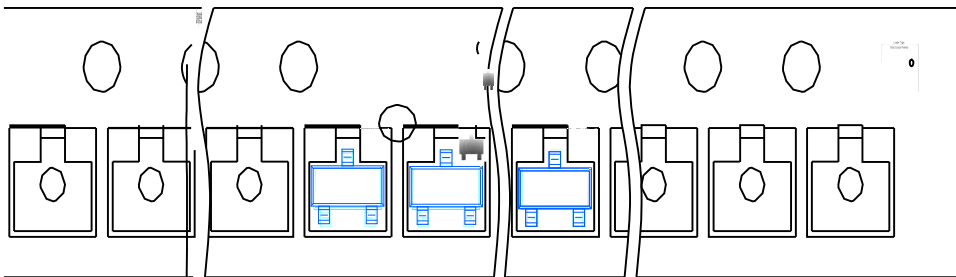
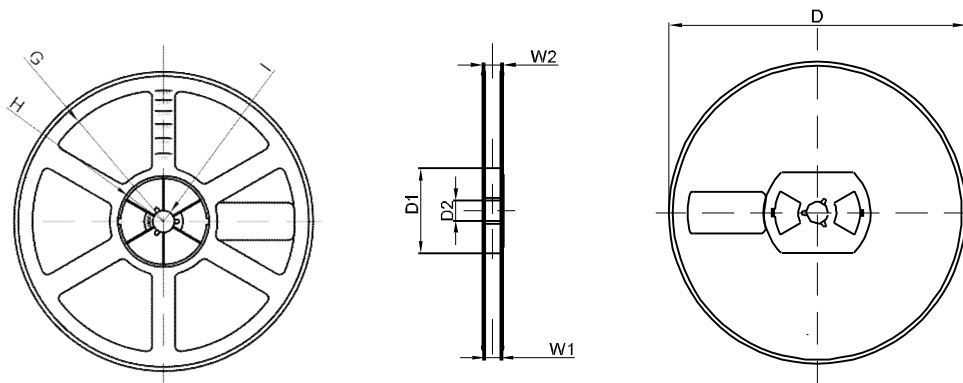
SOT-23 Suggested Pad Layout


Note:

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

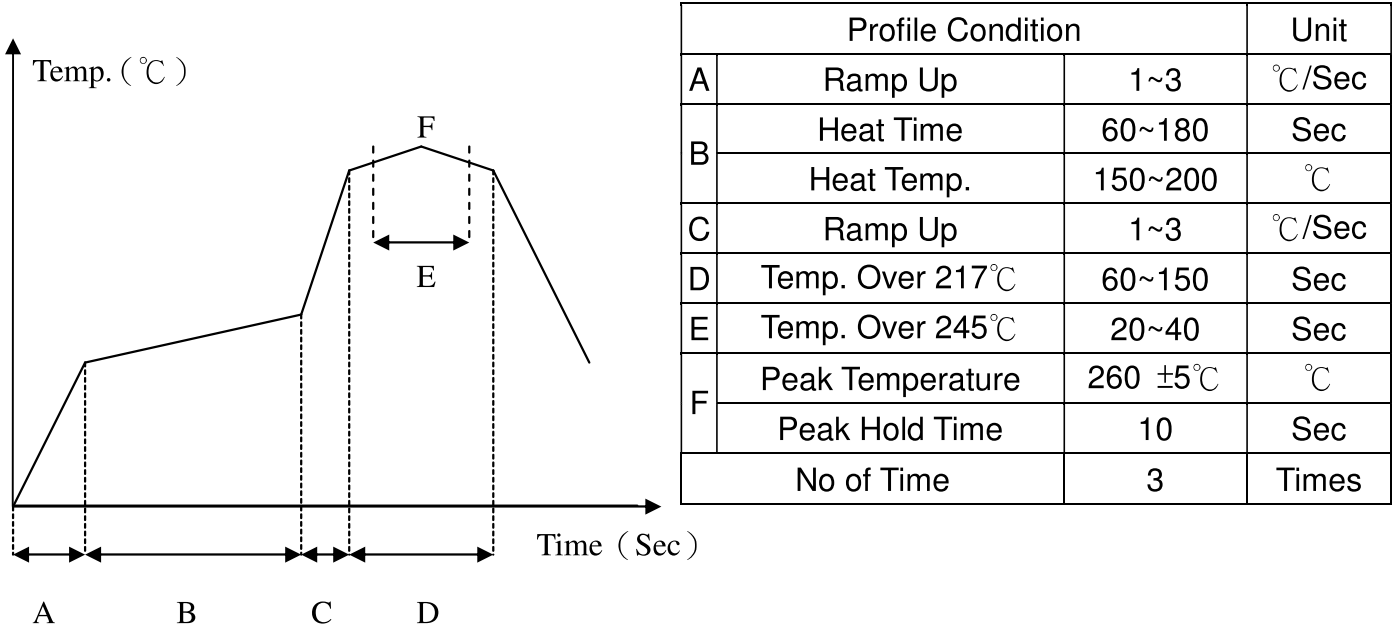
P-CHANNEL MOSFET
SOT-23 TAPE AND REEL
SOT-23 Embossed Carrier Tape


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

1.Re-Flow Heat-resisting Temperature Condition



2.Dip Soldering

Flow soldering with bath

Flow soldering condition : 260 +5/-5°C 10±0.5 Sec.

Times: 3 times

3.Hand Soldering

With soldering iron : 380°C 3±0.5 Sec

Times: 2 times