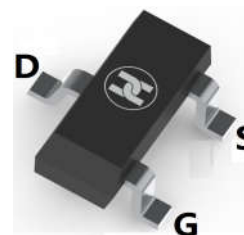


LOW VOLTAGE MOSFET (P-CHANNEL)

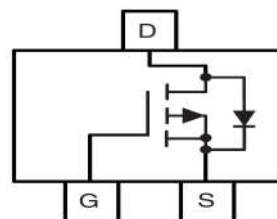
FEATURES

- $R_{DS(ON)} \leq 85 \text{ m}\Omega$ @ $V_{GS} = -4.5\text{V}$, $I_D = -3.0\text{A}$
 $R_{DS(ON)} \leq 115 \text{ m}\Omega$ @ $V_{GS} = -2.5\text{V}$, $I_D = -1.0\text{A}$
- Low on-resistance
- For low power DC to DC converter and load switch applications
- Surface mount device


SOT-23

MECHANICAL DATA

- Case: SOT-23
- Case material: Molded plastic. UL flammability
- Classification rating: 94V-0
- Terminal: Tin plated, solderable per MIL-STD-750, method 2026
- Weight: 0.008 grams (approximate)



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

Parameter		Symbol	Value	Unit
Drain-source voltage		V_{DS}	- 20	V
Gate-source voltage		V_{GS}	± 8	V
Continuous drain current ($T_J = 150^\circ\text{C}$)	$T_C = 25^\circ\text{C}$	I_D	- 3.0	A
	$T_C = 70^\circ\text{C}$		- 2.5	A
	$T_A = 25^\circ\text{C}$ (note 2,3)		- 2.3	A
	$T_A = 70^\circ\text{C}$ (note 2,3)		- 1.8	A
Pulsed drain current		I_{DM}	- 10	A
Continuous source-drain diode current	$T_C = 25^\circ\text{C}$	I_S	- 1.3	A
	$T_A = 25^\circ\text{C}$ (note 2,3)		- 0.72	A
Maximum power dissipation	$T_C = 25^\circ\text{C}$	P_D	1.6	W
	$T_C = 70^\circ\text{C}$		1.0	W
	$T_A = 25^\circ\text{C}$ (note 2,3)		0.86	W
	$T_A = 70^\circ\text{C}$ (note 2,3)		0.55	W
Operating junction and storage temperature range		T_J, T_{stg}	-55 ~ +150	$^\circ\text{C}$
Thermal resistance, junction-to-ambient @ $t \leq 5\text{s}$		R_{thJA}	Typ.:120 Max.:145	$^\circ\text{C/W}$
Thermal resistance, junction-to-foot, (Drain) @ Steady state		R_{thJF}	Typ.:62 Max.:78	$^\circ\text{C/W}$

Note:

1. Based on $T_C = 25^\circ\text{C}$.
2. Surface Mounted on 1" x 1" FR4 board.
3. $t = 5\text{s}$.
4. Maximum under Steady State conditions is 175°C/W .

LOW VOLTAGE MOSFET (P-CHANNEL)
ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Static						
Drain-source breakdown voltage	V _{DS}	-20			V	V _{DS} =0V, I _D =-250μA
V _{DS} temperature coefficient	ΔV _{DS} /T _J		-18		mV/°C	I _D =-250μA
V _{GS(th)} temperature coefficient	ΔV _{GS(th)} /T _J		2.2			
Gate-source threshold voltage	V _{GS(th)}	-0.4		-1	V	V _{DS} =V _{GS} , I _D =-250μA
Gate-source leakage	I _{GSS}			±100	nA	V _{DS} =0V, V _{GS} =±8V
Zero gate voltage drain current	I _{DSS}			-1	μA	V _{DS} =-20V, V _{GS} =0V
				-30		V _{DS} =-20V, V _{GS} =0V, T _J =85°C
On-state drain current (note 5)	I _{D(on)}	-6			A	V _{DS} ≤-5V, V _{GS} =-4.5V
Drain-source on-state resistance (note 5)	R _{DS(on)}		66	85	mΩ	V _{GS} =-4.5V, I _D =-3.0A
			88	115		V _{GS} =-2.5V, I _D =-1.0A
Forward transconductance (note 5)	g _{fs}		2.0		S	V _{DS} =-5V, I _D =-3.0A
Dynamic (note 6)						
Input capacitance	C _{iss}		405		pF	V _{DS} =-10V, V _{GS} =0V, f=1MHz
Output capacitance	C _{oss}		75			
Reverse transfer capacitance	C _{rss}		55			
Total gate charge	Q _g		5.5	10	nC	V _{DS} =-10V, V _{GS} =-4.5V, I _D =-3A
			3.3	6		
Gate-source charge	Q _{gs}		0.7			V _{DS} =-10V, V _{GS} =-2.5V, I _D =-3A
Gate-drain charge	Q _{gd}		1.3			
Gate resistance	R _g		6.0		Ω	f=1MHz
Turn-on delay time	t _{d(on)}		11	20	ns	V _{DD} =-10V, R _L =10Ω, I _D =-1A, V _{GEN} =-4.5V, R _G =1Ω
Rise time	t _r		35	60		
Turn-off delay time	t _{d(off)}		30	50		
Fall time	t _f		10	20		
Drain-source body diode characteristics						
Continuous source-drain diode current	I _S			-1.3	A	T _C =25°C
Pulse diode forward current (Note 5)	I _{SM}			-10		
Body diode voltage	V _{SD}		-0.7	-1.3	V	I _S = -0.7A
Body diode reverse recovery time	t _{rr}		30	50	ns	I _F =-3.0A, dI/dt=100A/μs, T _J =25°C
Body diode reverse recovery charge	Q _{rr}		25	50	nC	
Reverse recovery fall time	t _a		15		ns	
Reverse recovery rise time	t _b		15			

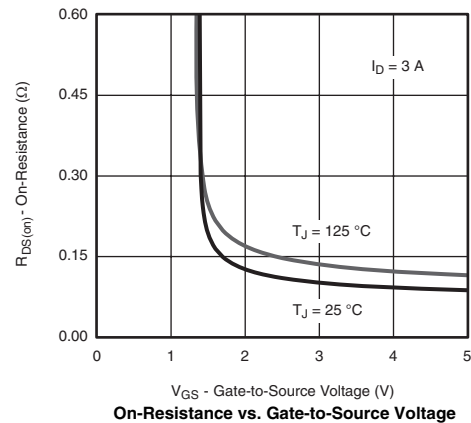
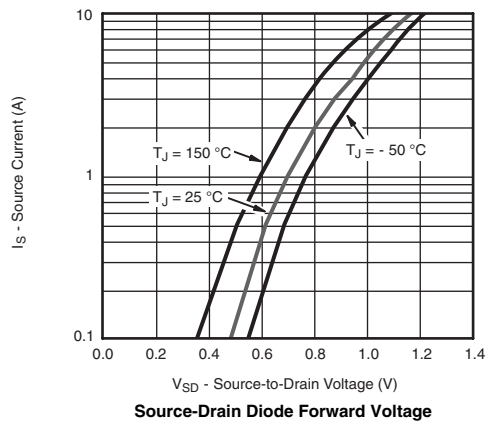
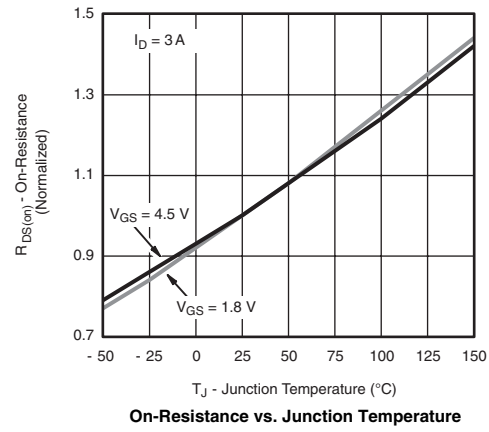
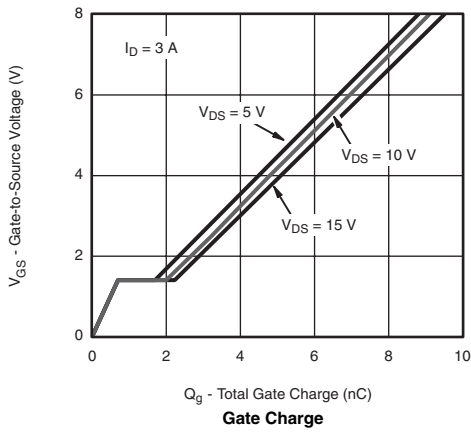
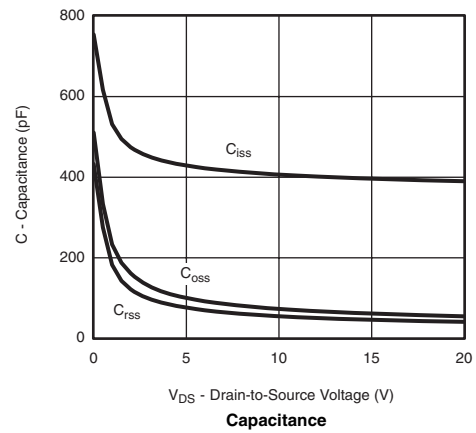
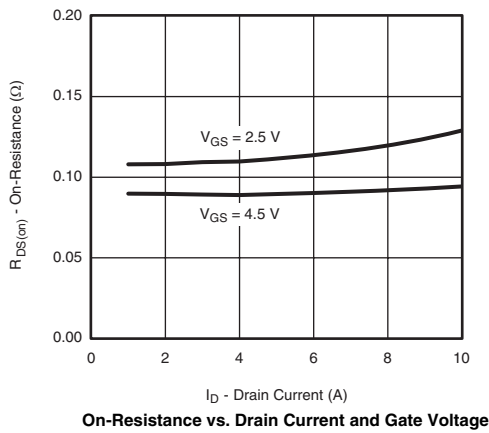
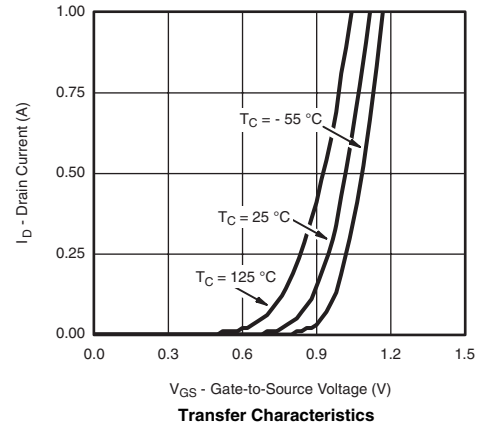
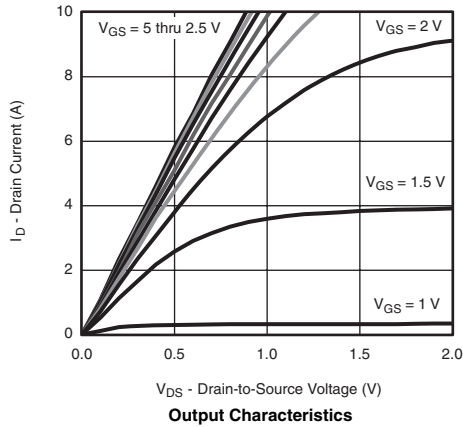
Note:

5. Pulse test : pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

6. Guaranteed by design, not subject to production testing.

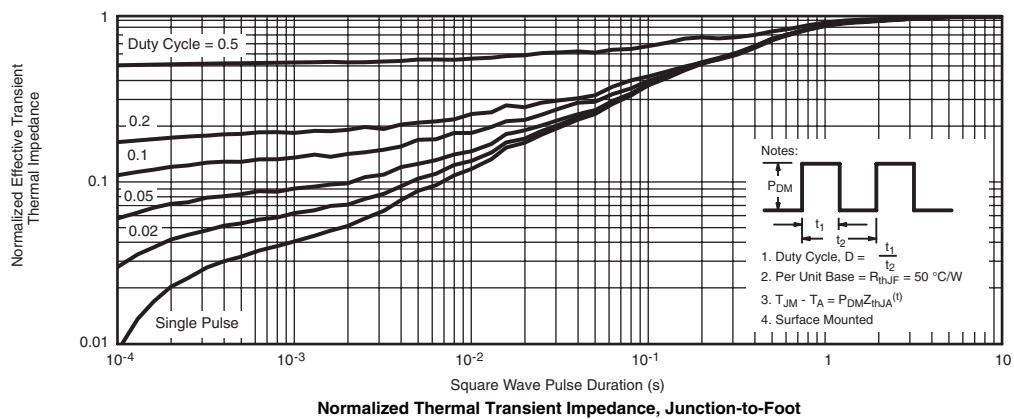
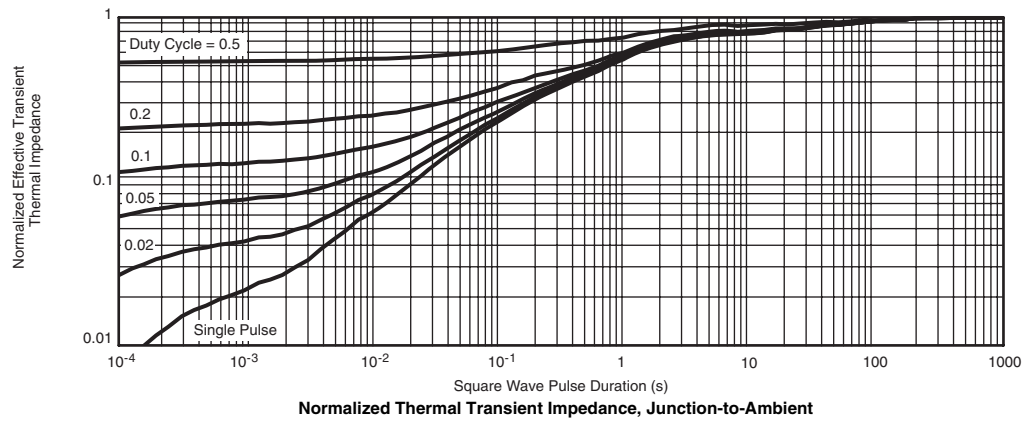
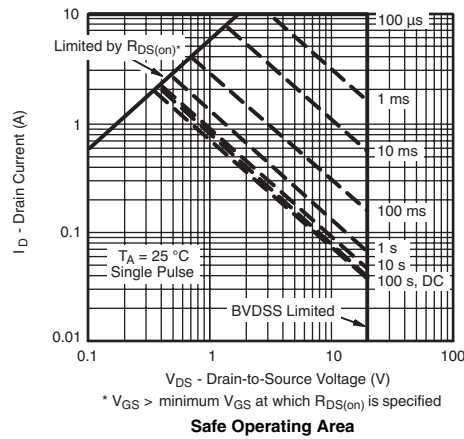
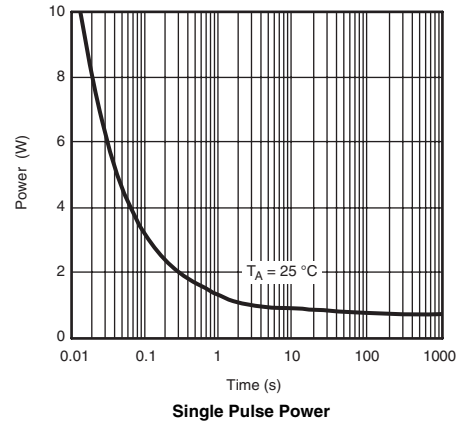
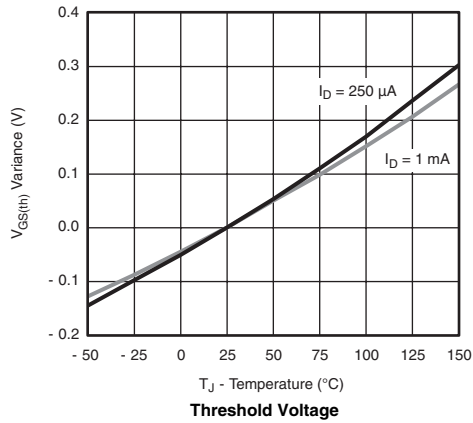
LOW VOLTAGE MOSFET (P-CHANNEL)

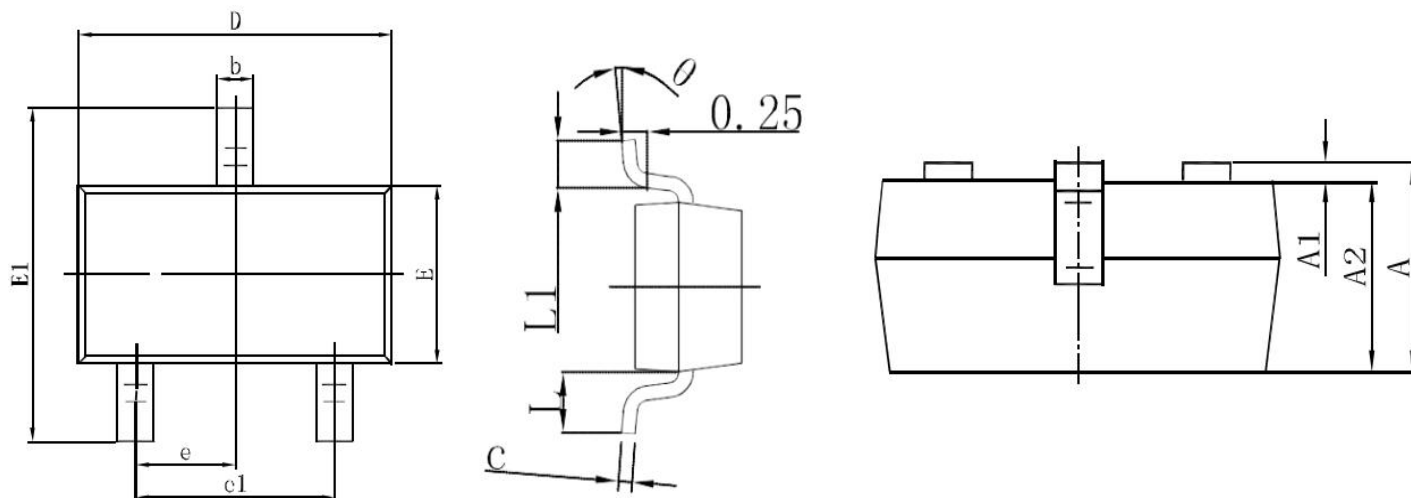
TYPICAL CHARACTERISTICS



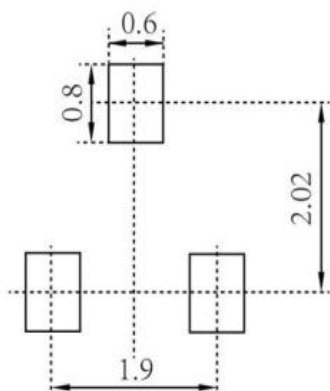
LOW VOLTAGE MOSFET (P-CHANNEL)

TYPICAL CHARACTERISTICS (continued)



LOW VOLTAGE MOSFET (P-CHANNEL)
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


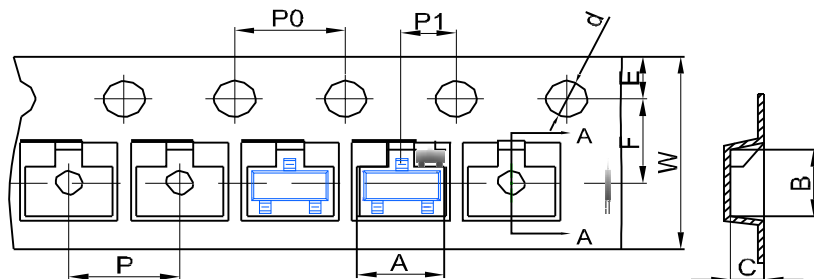
Note:

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

LOW VOLTAGE MOSFET (P-CHANNEL)

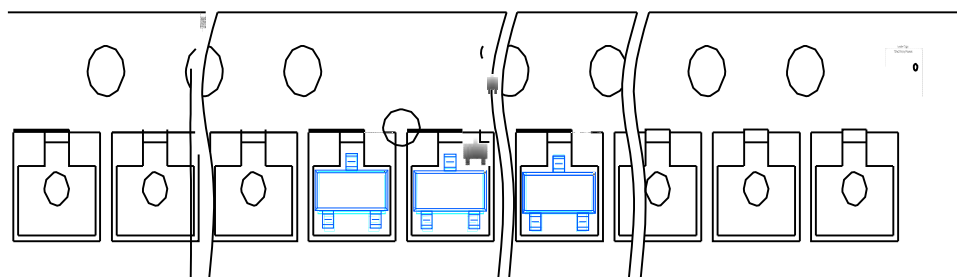
SOT-23 TAPE AND REEL

SOT-23 Embossed Carrier Tape

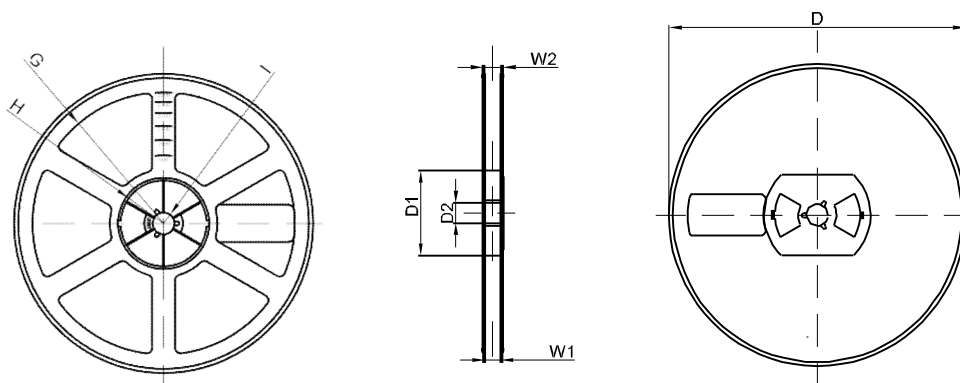


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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