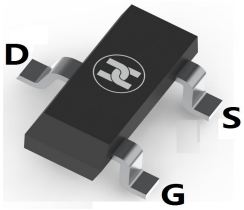
LOW VOLTAGE MOSFET (P-CHANNEL)



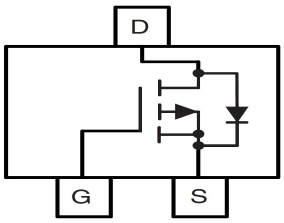
SOT-23

FEATURES

- V_{DS}=-20V,$R_{DS(ON)}$≤115mΩ@V_{GS}=-4.5V,I_D=-1.6A
- High Density Cell Design For Ultra Low On-Resistance
- Advanced trench process technology
- Surface Mount device

MECHANICAL DATA

- Case: SOT-23
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.008 grams (approximate)



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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±8	
Continuous Drain Current	I_D	-1.6	A
Pulsed Drain Current [1]	I_{DM}	-5	
Maximum Power Dissipation[2]	P_D	0.5	W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	°C
Junction-to-Ambient Thermal Resistance (PCB mounted) [2]	R_{thJA}	100	°C/W
Junction-to-Ambient Thermal Resistance (PCB mounted) [3]		166	

Notes
[1] Pulse width limited by maximum junction temperature.
[2] Surface Mounted on FR4 Board, t ≤ 5 sec.
[3] Surface Mounted on FR4 Board.

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

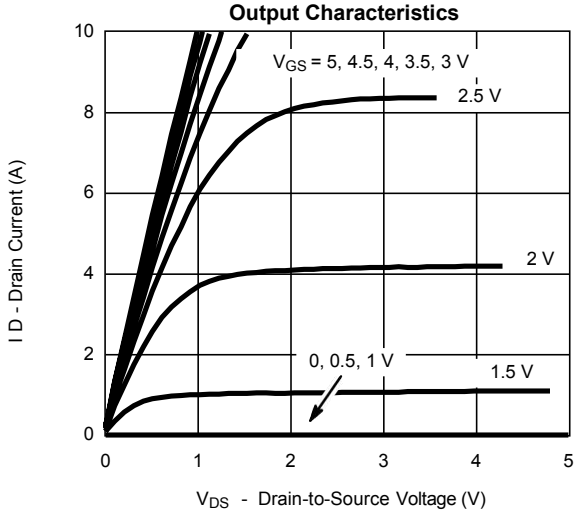
Parameter	Symbo	Test Condition	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D = -250uA	-20			V
Drain-Source On-State Resistance[1]	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -1.6A		88	115	mΩ
		V_{GS} = -2.5V, I_D = -1.3A		116	160	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D = -250uA	-0.42		-1.5	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -16V, V_{GS} = 0V			-1	uA
Gate Body Leakage	I_{GSS}	V_{GS} = ± 8V, V_{DS} = 0V			±100	nA
Forward Transconductance[1]	g_{fs}	V_{DS} = -5V, I_D = -2.8A		6.5		S
Dynamic						
Total Gate Charge	Q_g	V_{DS} = -6V, I_D ÷-2.8A V_{GS} = -4.5V		5.8	10	nC
Gate-Source Charge	Q_{gs}			0.85		
Gate-Drain Charge	Q_{gd}			1.7		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = -6V, RL=6Ω I_D÷-1.A, V_{GEN} = -4.5V R_G= 6Ω		13	25	ns
Turn-On Rise Time	t_r			36	60	
Turn-Off Delay Time	$t_{d(off)}$			42	70	
Turn-Off Fall Time	t_f			34	60	
Input Capacitance	C_{iss}	V_{DS} = -6V, V_{GS} = 0V f = 1.0MHz		415		pF
Output Capacitance	C_{oss}			223		
Reverse Transfer Capacitance	C_{rss}			87		
Source-Drain Diode						
Max. Diode Forward Current	I_S				-1.6	A
Diode Forward Voltage	V_{SD}	I_S = -1.6A, V_{GS} = 0V		-0.8	-1.2	V

* Pulse test ; Pulse width ≤300μs, Duty cycle ≤ 0.5% .

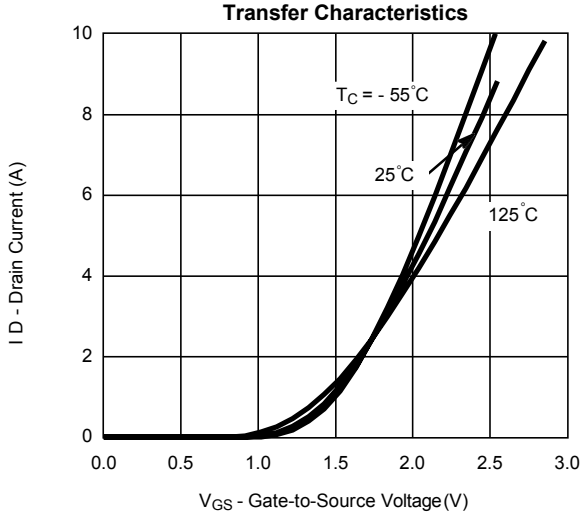
LOW VOLTAGE MOSFET (P-CHANNEL)

Typical Characteristics

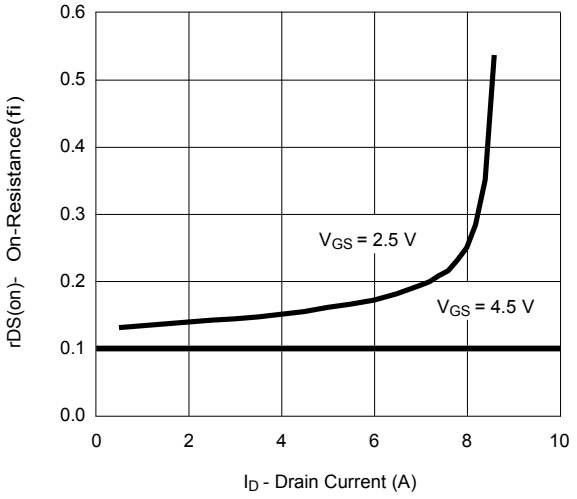
Output Characteristics



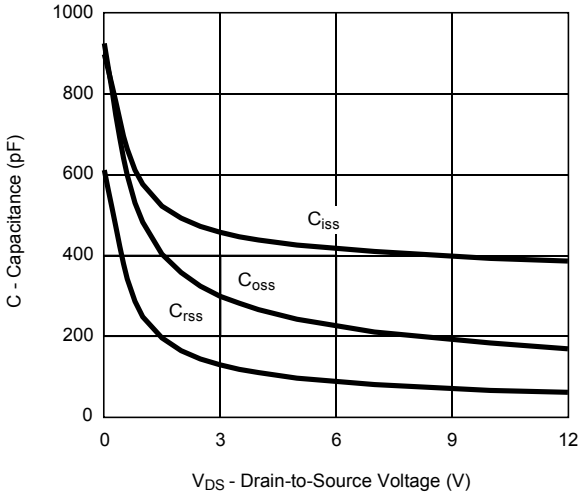
Transfer Characteristics



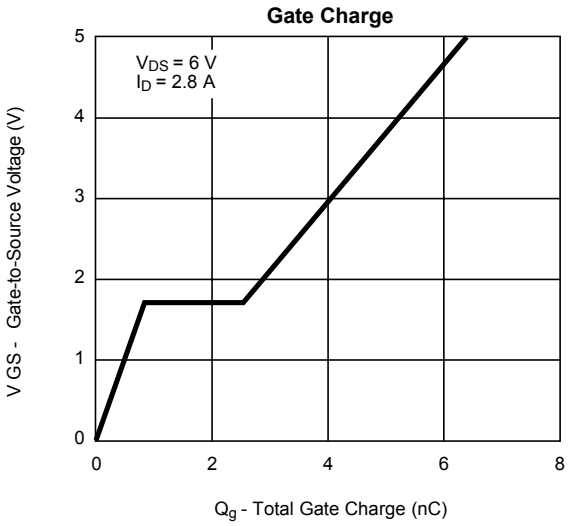
On-Resistance vs. Drain Current



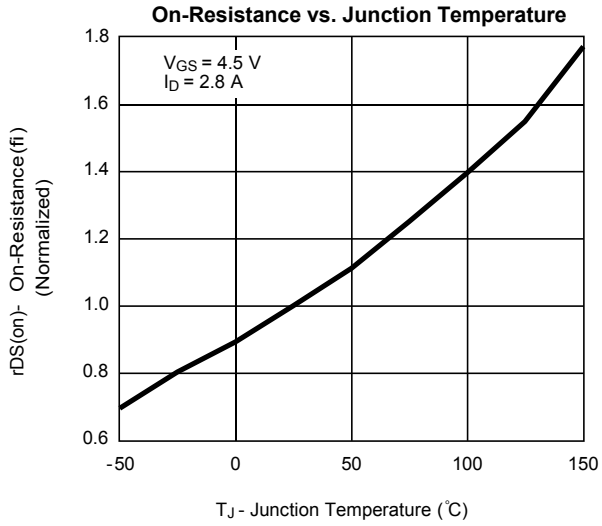
Capacitance



Gate Charge

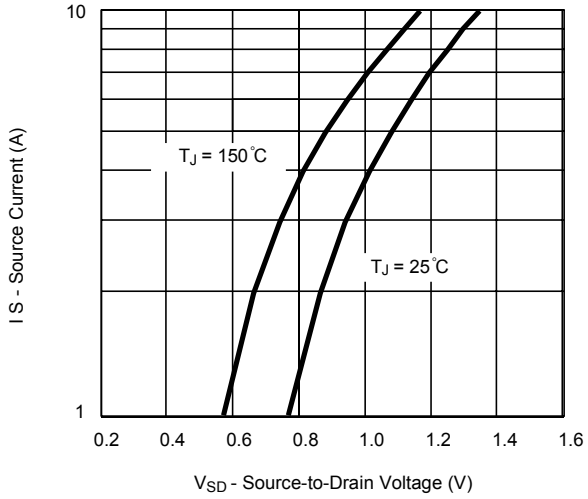


On-Resistance vs. Junction Temperature

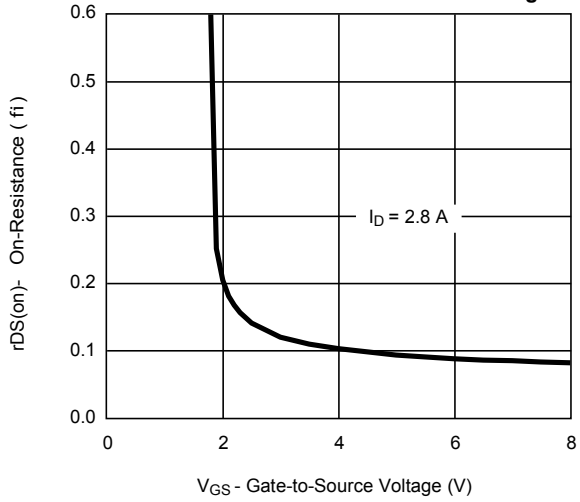


LOW VOLTAGE MOSFET (P-CHANNEL)

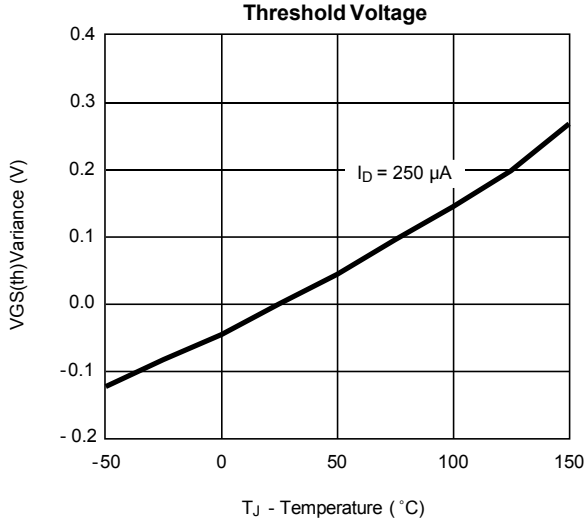
Source-Drain Diode Forward Voltage



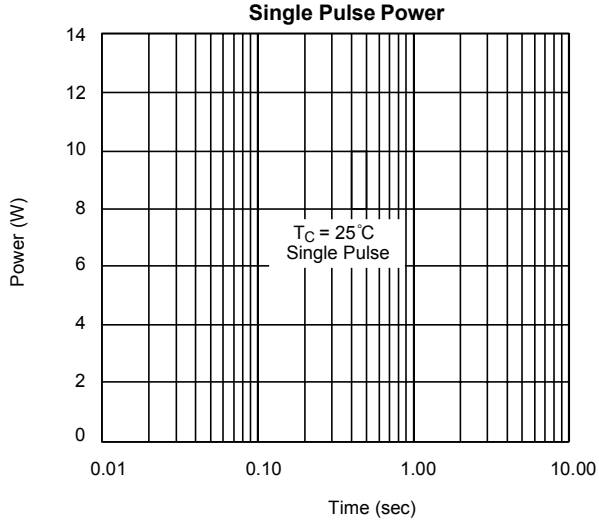
On-Resistance vs. Gate-to-Source Voltage



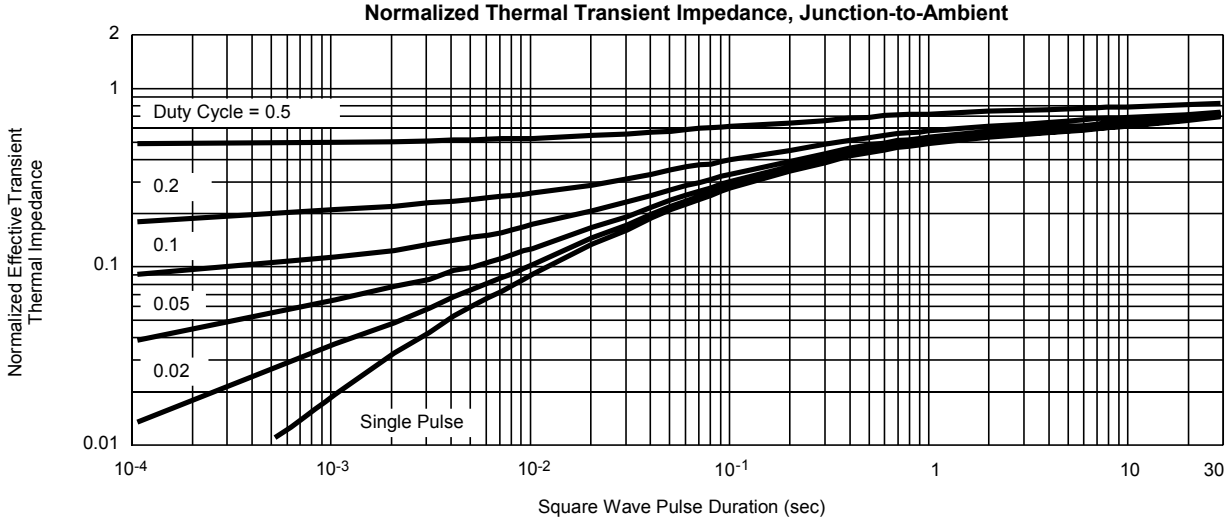
Threshold Voltage



Single Pulse Power

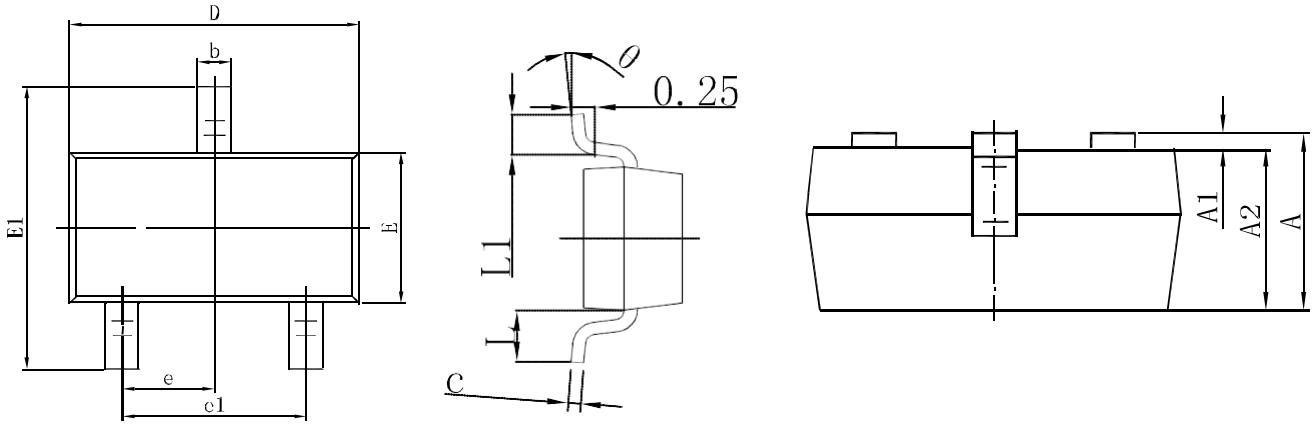


Normalized Thermal Transient Impedance, Junction-to-Ambient



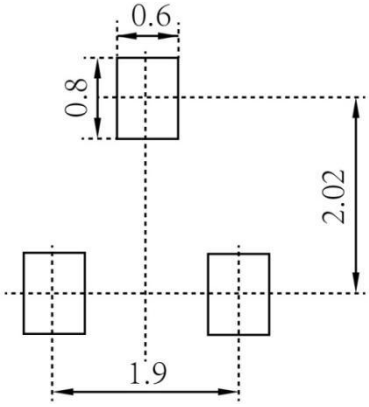
LOW VOLTAGE MOSFET (P-CHANNEL)

SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	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

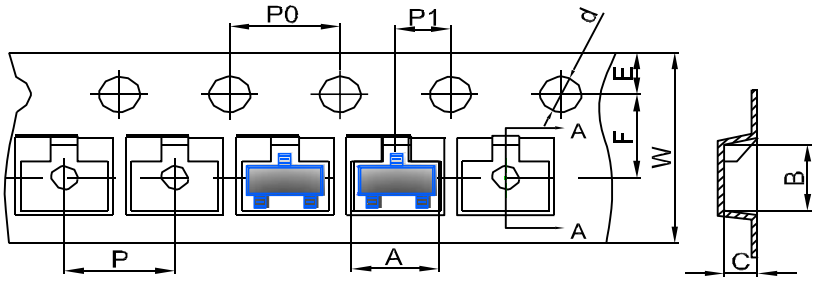
2.General tolerance: ±0.05mm

3.The pad layout is for reference purposes only

LOW VOLTAGE MOSFET (P-CHANNEL)

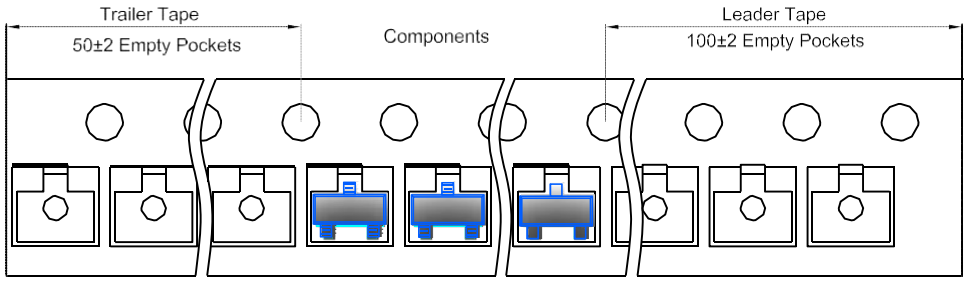
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

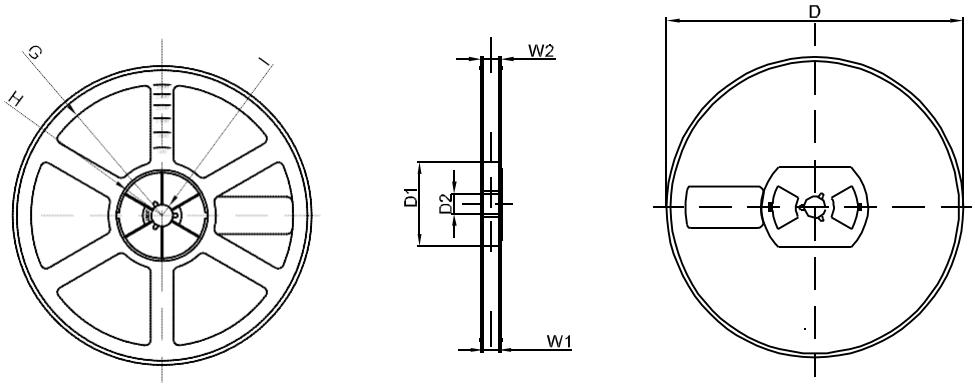


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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