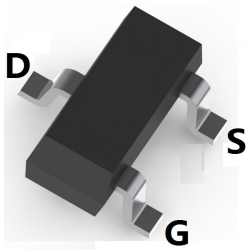
LOW VOLTAGE MOSFET (N-CHANNEL)

FEATURES

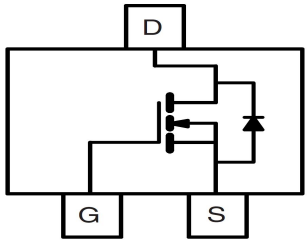
- Low on-resistance:V_{DS}=100V ,$R_{DS(ON)}$≤280mΩ@V_{GS}=10V,I_D=2A
- For Low power DC to DC converter application
- For Load switch application
- Surface Mount device



SOT-23

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	Value	Unit
Drain-source voltage	V_{DS}	100	V
Gate-source voltage	V_{GS}	±20	V
Continuous drain current	I_D	2	A
Pulsed drain current (Note 1)	I_{DM}	8	A
Power dissipation	P_D	1.2	W
Thermal resistance from Junction to ambient	$R_{\theta JA}$	105	°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	$V_{(BR)DSS}$	100			V	V_{GS}=0V, I_D=250μA
Zero gate voltage drain current	I_{DSS}			1	μA	V_{DS}=60V, V_{GS}=0V
Gate-body leakage current	I_{GSS}			±100	nA	V_{DS}=0V, V_{GS}=±20V
Gate-threshold voltage (note 1)	$V_{GS(th)}$	1.1		3.0	V	V_{DS}=V_{GS}, I_D=250μA
Drain-source on-resistance (note 1)	$R_{DS(ON)}$		250	280	mΩ	V_{GS}=10V, I_D=3A
			260	310	mΩ	V_{GS}=4.5V, I_D=3A
Forward transconductance (note 1)	g_{FS}	1.4			S	V_{DS}=15V, I_D=2A
Input capacitance	C_{iss}		330		pF	V_{DS}=50V, V_{GS}=0V, f=1MHz
Output capacitance	C_{oss}		88		pF	
Reverse transfer capacitance	C_{rss}		17		pF	
Turn-on delay time	$t_{d(on)}$		14		nS	V_{DD}=50V, V_{GS}=10V, R_{GEN}=1Ω, I_D=1.3A
Turn-on rise time	t_r		54		nS	
Turn-off delay time	$t_{d(off)}$		18		nS	
Turn-off fall time	t_f		10		nS	
Total gate charge	Q_g		5.3		nC	V_{DS}=50V,V_{GS}=4.5V,I_D=3A
Gate-source charge	Q_{gs}		1.4		nC	
Gate-drain charge	Q_{gd}		1.3		nC	
Diode forward voltage (note 1)	V_{SD}			1.2	V	I_S=2A, V_{GS}=0V

Note:1. Pulse test: Pulse width ≤300μs, Duty cycle ≤ 2% .

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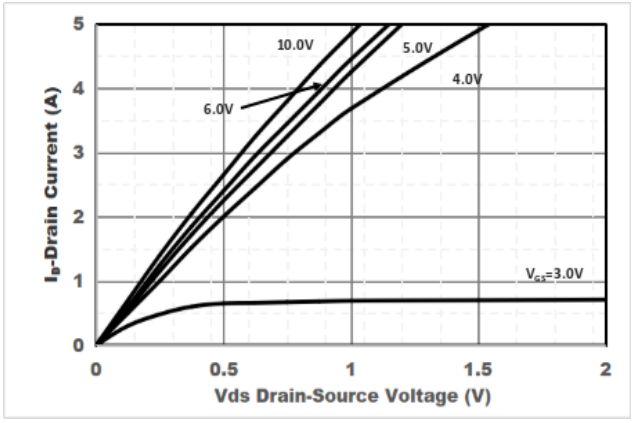

Figure1. Output Characteristics

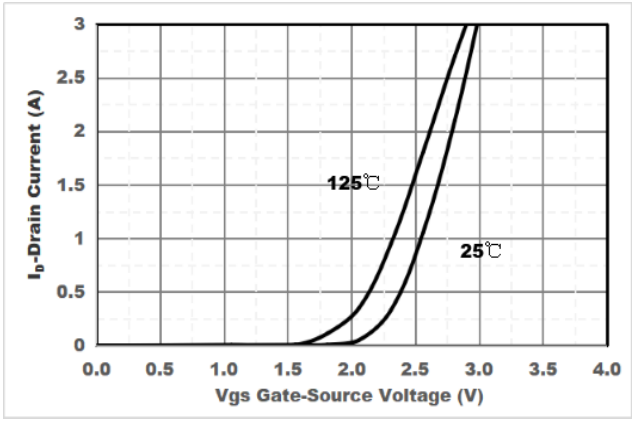

Figure2. Transfer Characteristics

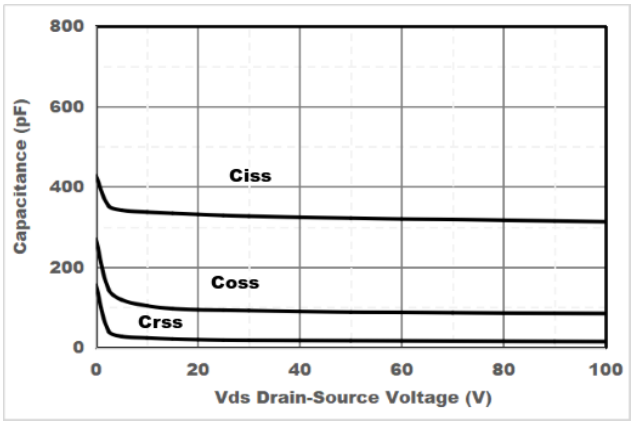

Figure3. Capacitance Characteristics

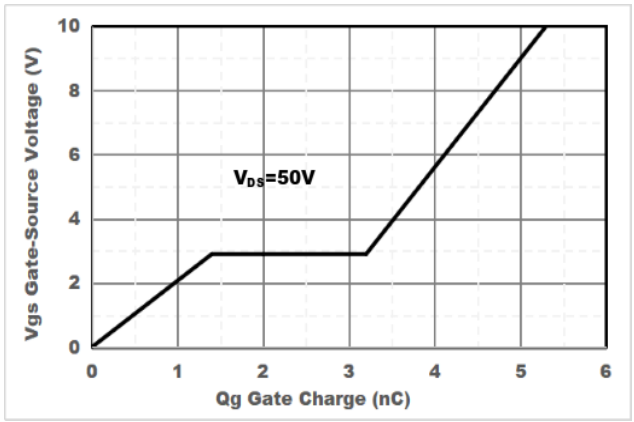

Figure4. Gate Charge

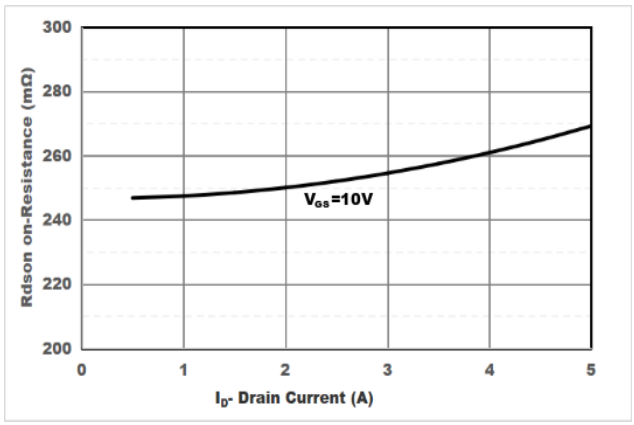

Figure5. Drain-Source on Resistance

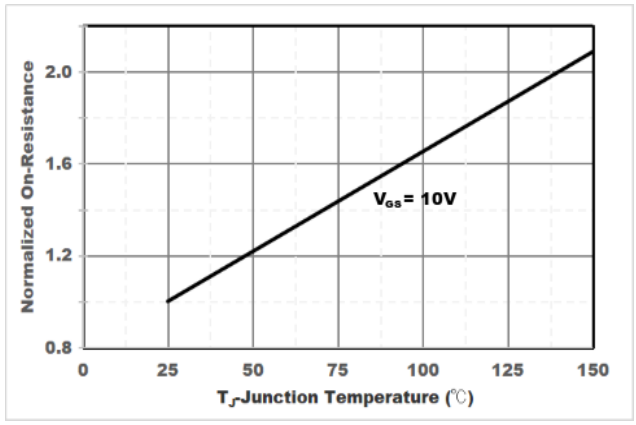

Figure6. Drain-Source on Resistance

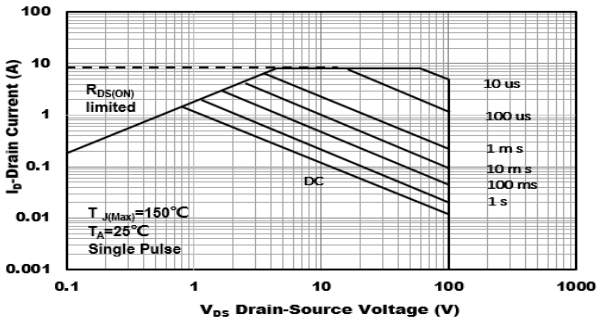

Figure7. Safe Operation Area

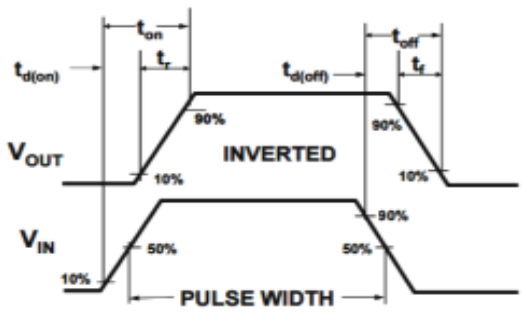

Figure8. Switching wave

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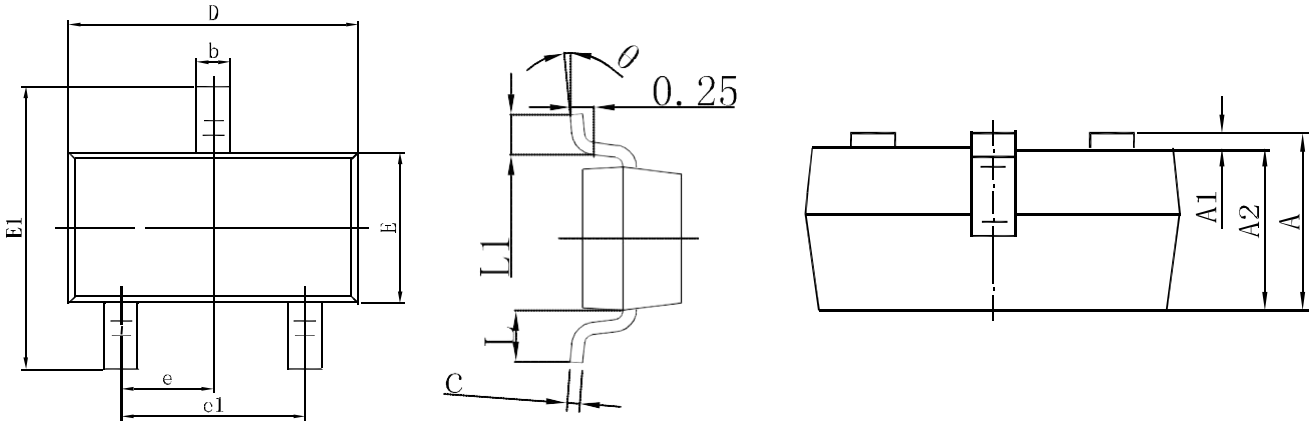
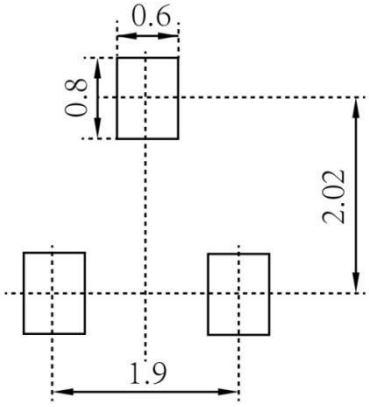
SOT-23 Package Outline Dimensions



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: ±0.05mm

3.The pad layout is for reference purposes only

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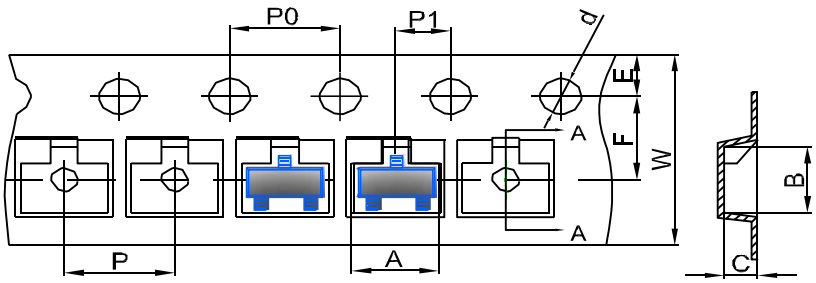
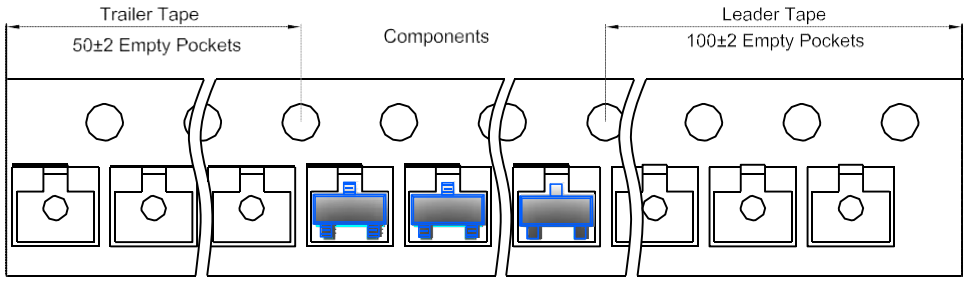
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

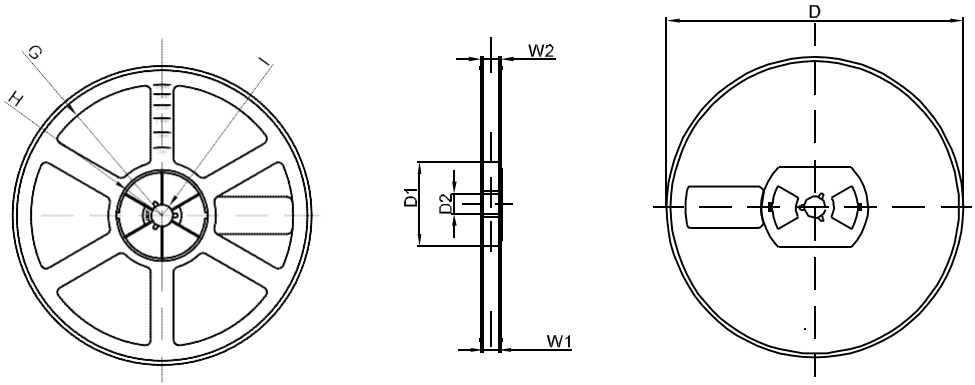


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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