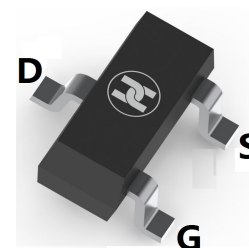
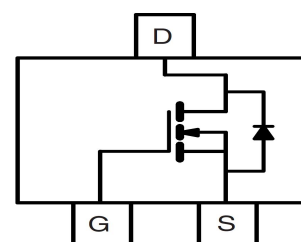


LOW VOLTAGE MOSFET (N-CHANNEL)**FEATURES**

- Low on-resistance: $R_{DS(ON)} \leq 160m\Omega @ V_{GS}=10V$
- 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
- Moisture Sensitivity: Level 1 per J-STD-020
- Weight: 0.008 grams (approximate)

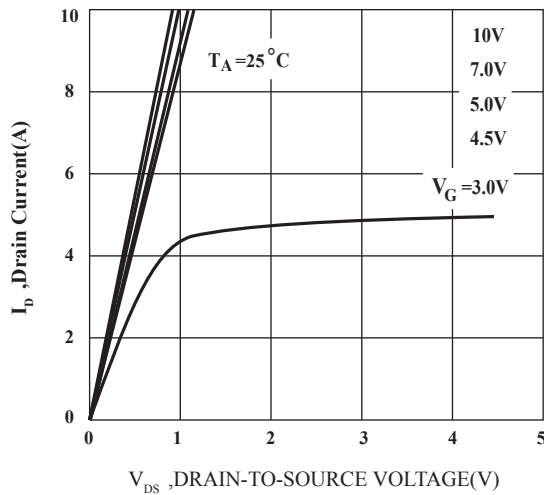
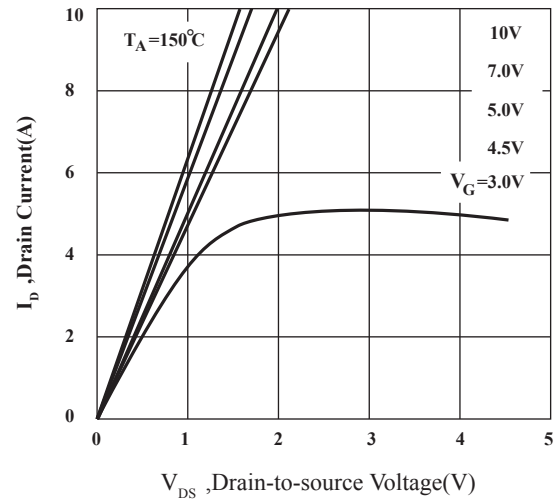
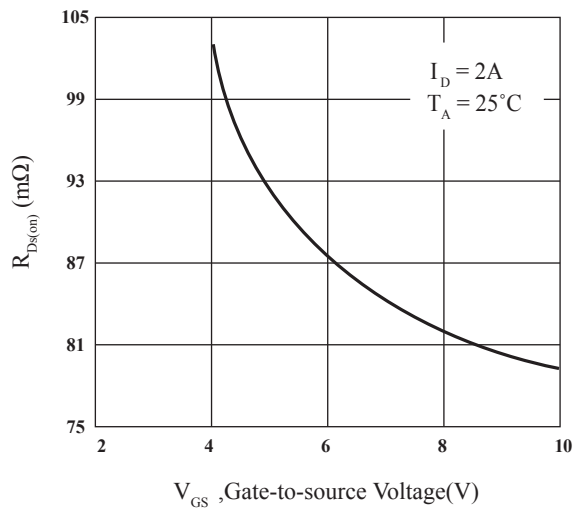
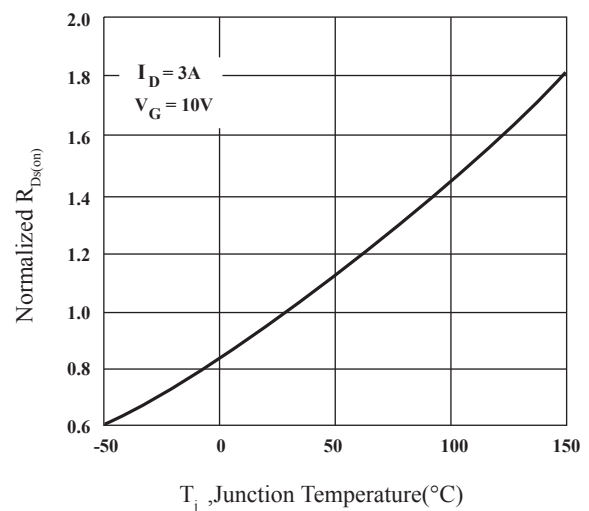
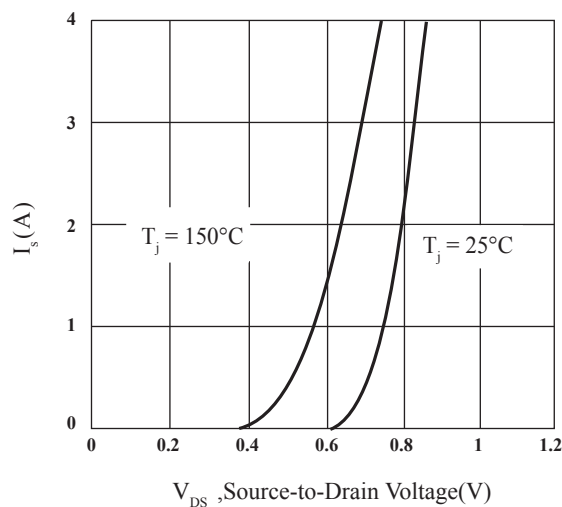
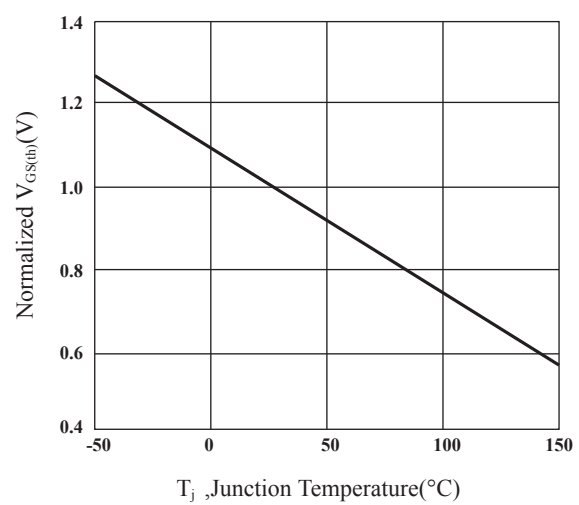
MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

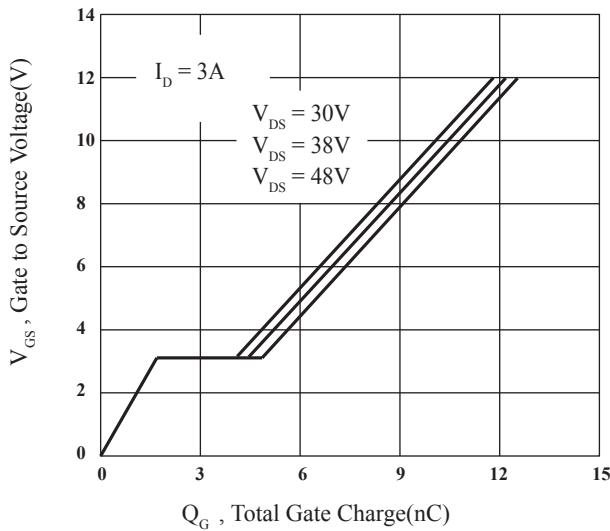
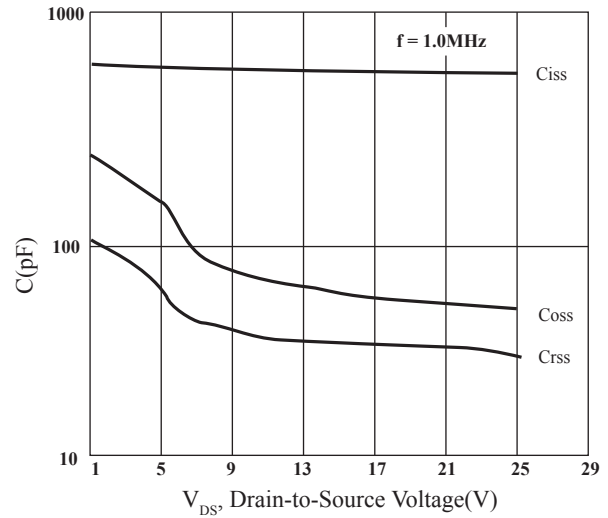
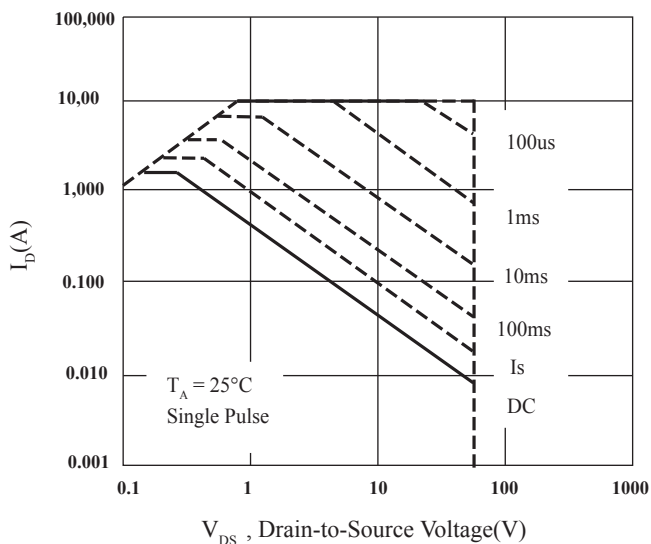
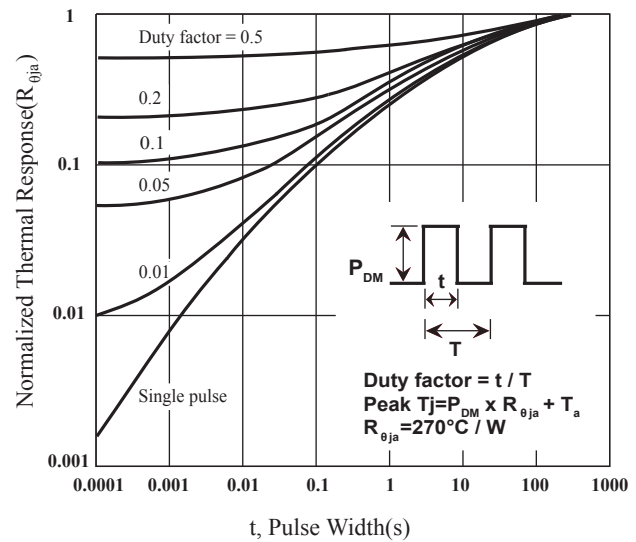
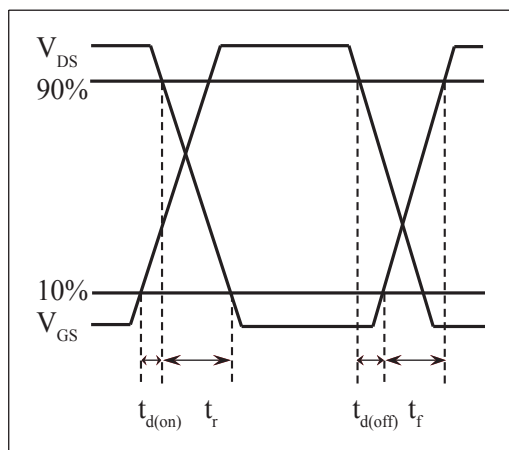
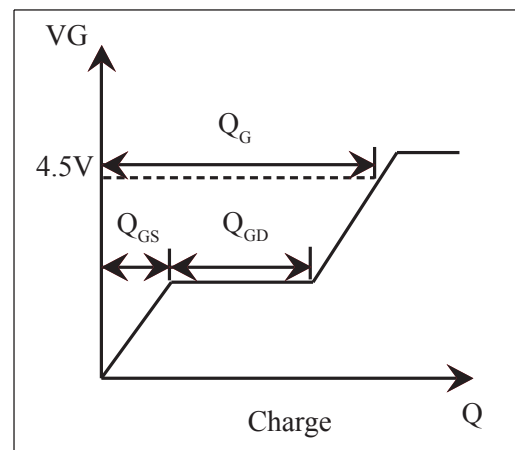
Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	60	V
Gate-source voltage	V_{GS}	± 20	V
Continuous drain current	$T_A=25^\circ\text{C}$	I_D	3
	$T_A=70^\circ\text{C}$	I_D	2.3
Pulsed drain current (Note 1)	I_{DM}	10	A
Power dissipation	P_D	1.38	W
Thermal resistance from Junction to ambient	$R_{\theta JA}$	90	$^\circ\text{C/W}$
Junction temperature	T_J	150	$^\circ\text{C}$
Storage temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

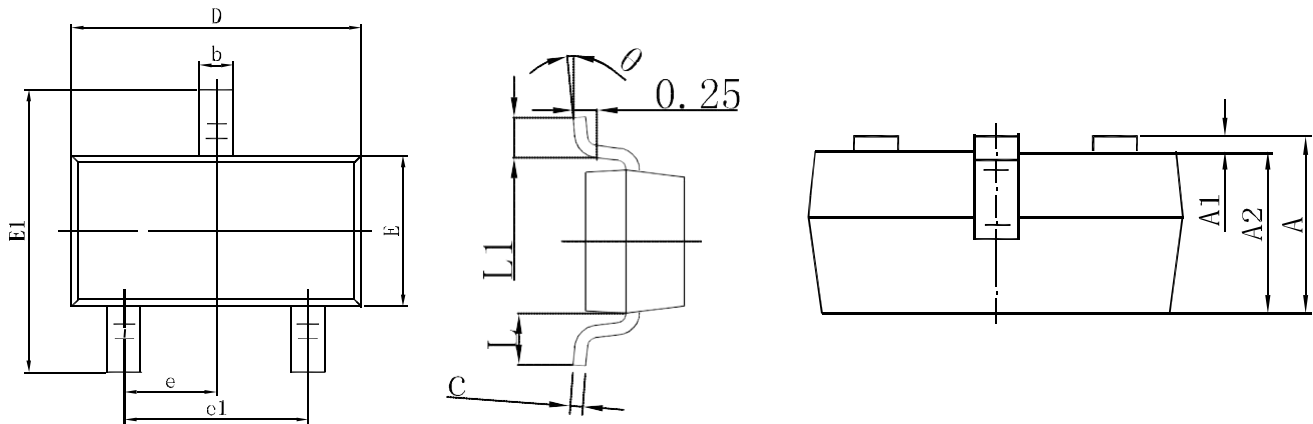
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Drain-Source breakdown voltage	$V_{(BR)DSS}$	60			V	$V_{GS}=0V, I_D=250\mu A$
Zero gate voltage drain current	I_{DSS}			10	μA	$V_{DS}=60V, V_{GS}=0V$
Gate-body leakage current	I_{GSS}			± 100	nA	$V_{DS}=0V, V_{GS}=\pm 20V$
Gate-threshold voltage (note 1)	$V_{GS(th)}$	1		3.0	V	$V_{DS}=V_{GS}, I_D=250\mu A$
Drain-source on-resistance (note 1)	$R_{DS(ON)}$			160	m Ω	$V_{GS}=10V, I_D=2A$
				220	m Ω	$V_{GS}=4.5V, I_D=1.7A$
Forward transconductance (note 1)	g_{FS}		5		S	$V_{DS}=5V, I_D=3A$
Input capacitance	C_{iss}		490	780	pF	$V_{DS}=25V, V_{GS}=0V, f=1MHz$
Output capacitance	C_{oss}		55		pF	
Reverse transfer capacitance	C_{rss}		40		pF	
Turn-on delay time	$t_{d(on)}$		6		nS	$V_{DS}=30V, V_{GS}=10V, R_D=30\Omega, I_D=1A, R_G=3.3\Omega$
Turn-on rise time	t_r		5		nS	
Turn-off delay time	$t_{d(off)}$		16		nS	
Turn-off fall time	t_f		3		nS	
Total gate charge	Q_g		6	10	nC	$V_{DS}=48V, V_{GS}=4.5V, I_D=3A$
Gate-source charge	Q_{gs}		1.6		nC	
Gate-drain charge	Q_{gd}		3		nC	
Diode forward voltage (note 1)	V_{SD}			1.2	V	$I_S=1.2A, V_{GS}=0V$
Reverse Recovery Time	T_{rr}		25		nS	$V_{GS}=0V, I_S=3A, dI/dt=100A/\mu s$
Reverse Recovery Charge	Q_{rr}		26		nC	$V_{GS}=0V, I_S=3A, dI/dt=100A/\mu s$

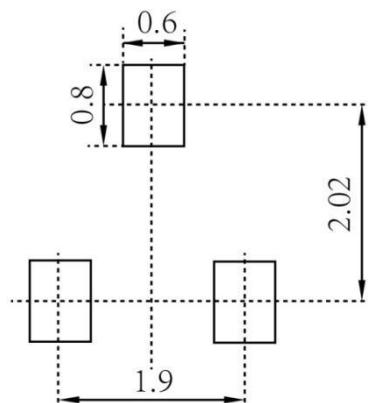
Note: 1. Pulse test: Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$.

LOW VOLTAGE MOSFET (N-CHANNEL)**Typical Characteristics****FIG.1 Typical Output Characteristics****Fig.2 Typical Output Characteristics****FIG.3 On-Resistance v.s. Gate Voltage****Fig.4 Normalized OnResistance****Fig.5 Forward Characteristics of Reverse Diode****Fig.6 Gate Threshold Voltage v.s. Junction Temperature**

LOW VOLTAGE MOSFET (N-CHANNEL)**Fig 7. Gate Charge Characteristics****Fig 8. Typical Capacitance Characteristics****Fig 9. Maximum Safe Operation Area****Fig 10. Effective Transient Thermal Impedance****Fig 11. Switching Time Circuit****Fig.12 Gate Charge Waveform**

LOW VOLTAGE MOSFET (N-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°

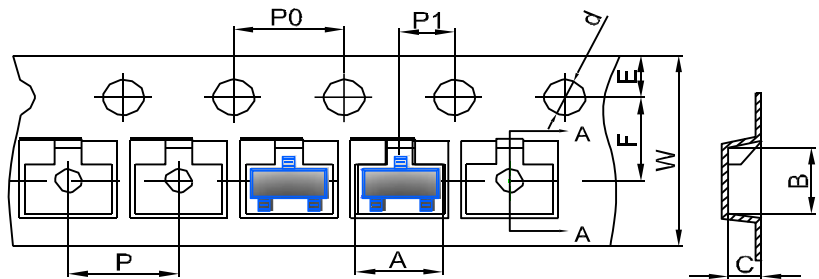
SOT-23 Suggested Pad Layout**Note:**

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

LOW VOLTAGE MOSFET (N-CHANNEL)

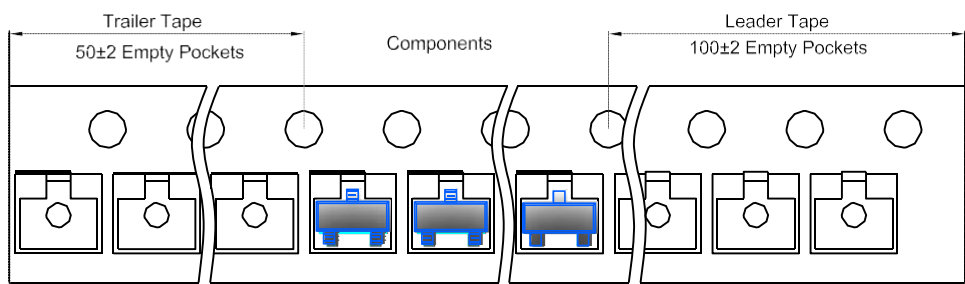
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

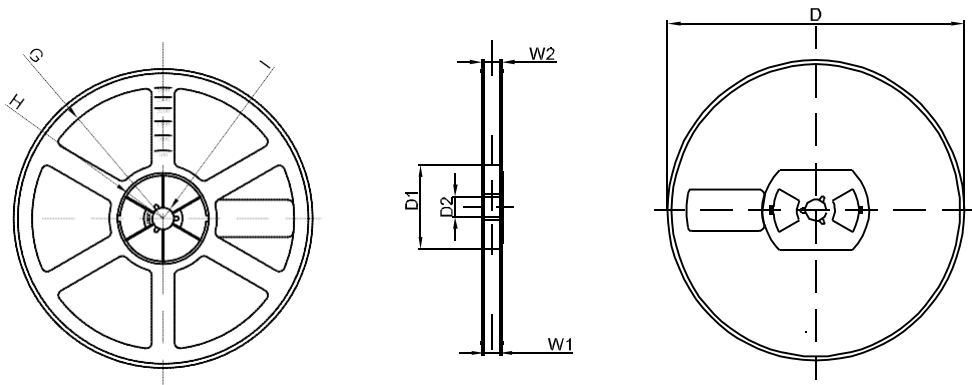


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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