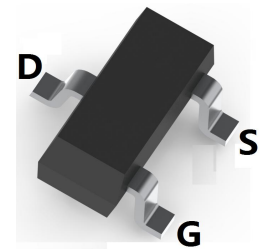
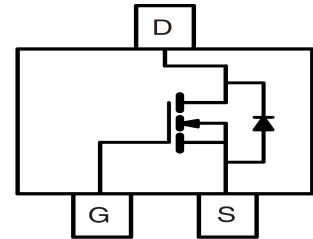


**LOW VOLTAGE MOSFET (N-CHANNEL)**
**FEATURES**

- Ultra low on-resistance:  $V_{DS}=20V, R_{DS(ON)}=40m\Omega @ V_{GS}=4.5V, I_D=4.5A$
- 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 ( $T_A = 25^\circ\text{C}$  unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-source voltage	$V_{DS}$	20	V
Gate-source voltage	$V_{GS}$	$\pm 10$	V
Continuous drain current	$I_D$	4.5	A
Pulsed drain current (Note 1)	$I_{DM}$	15	A
Power dissipation	$P_d$	1.25	W
Thermal resistance from Junction to ambient	$R_{\theta JA}$	100	$^\circ\text{C/W}$
Junction temperature	$T_J$	150	$^\circ\text{C}$
Storage temperature	$T_{STG}$	-55 ~+150	$^\circ\text{C}$

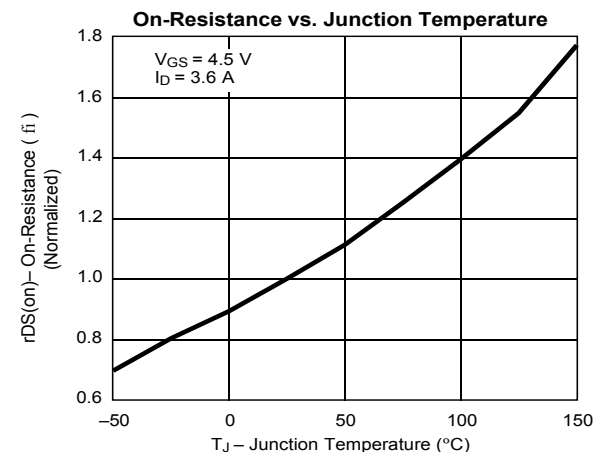
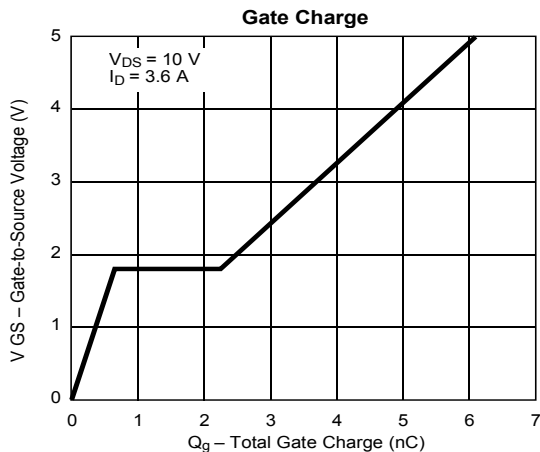
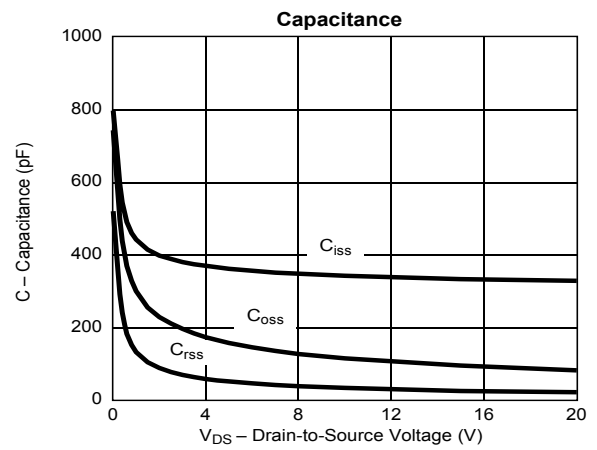
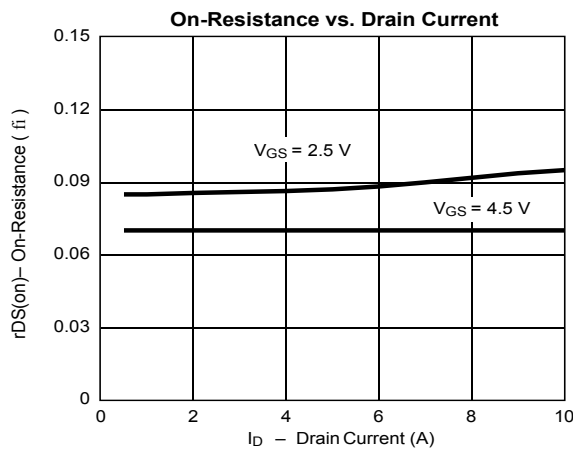
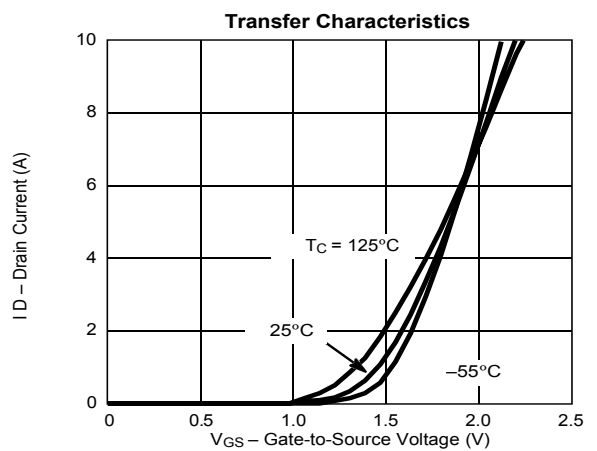
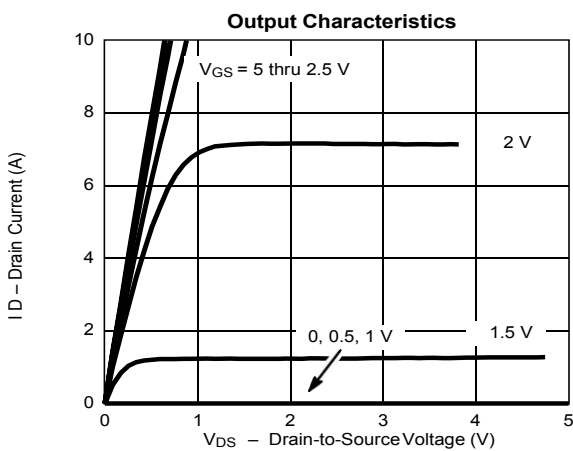
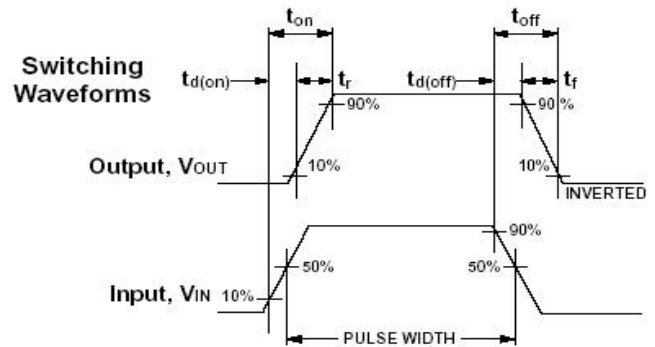
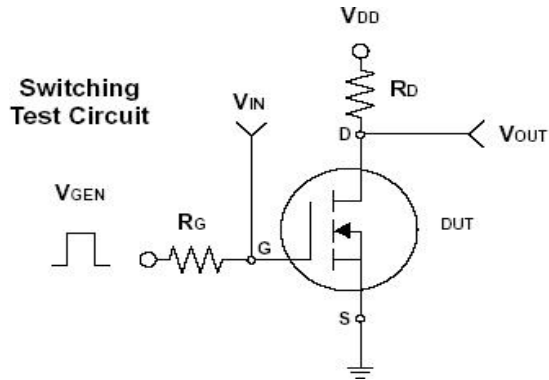
**ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$  unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Drain-Source breakdown voltage	$V_{(BR)DSS}$	20			V	$V_{GS}=0V, I_D=250\mu A$
Zero gate voltage drain current	$I_{DSS}$			1	$\mu A$	$V_{DS}=20V, V_{GS}=0V$
Gate-body leakage current	$I_{GSS}$			$\pm 100$	nA	$V_{DS}=0V, V_{GS}=\pm 10V$
Gate-threshold voltage (note 1)	$V_{GS(th)}$	0.5	0.78	1.5	V	$V_{DS}=V_{GS}, I_D=250\mu A$
Drain-source on-resistance (note 1)	$R_{DS(ON)}$		32	40	m $\Omega$	$V_{GS}=4.5V, I_D=4.5A$
			50	60	m $\Omega$	$V_{GS}=2.5V, I_D=4A$
			62	75	m $\Omega$	$V_{GS}=1.8V, I_D=1A$
On-State Drain Current	$I_{D(ON)}$	18			A	$V_{DS}=5V, V_{GS}=4.5V$
Forward transconductance (note 1)	$g_{FS}$	5			S	$V_{DS}=5V, I_D=5A$
Input capacitance	$C_{iss}$		888		pF	$V_{DS}=15V, V_{GS}=0V, f=1\text{MHz}$
Output capacitance	$C_{oss}$		144		pF	
Reverse transfer capacitance	$C_{rss}$		115		pF	
Turn-on delay time	$t_{d(on)}$		31.8		nS	$V_{DD}=10V, V_{GS}=10V, R_{GEN}=6\Omega, R_L=10\Omega$
Turn-on rise time	$t_r$		14.5		nS	
Turn-off delay time	$t_{d(off)}$		50.3		nS	
Turn-off fall time	$t_f$		31.9		nS	
Total gate charge	$Q_g$		16.8		nC	$V_{DD}=15V, V_{GS}=10V, I_D=5A$
Gate-source charge	$Q_{gs}$		2.5		nC	
Gate-drain charge	$Q_{gd}$		5.4		nC	
Diode forward voltage (note 1)	$V_{SD}$			1.25	V	$I_S=0.83A, V_{GS}=0V$
Diode forward current	$I_S$		0.82	1.2	A	

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

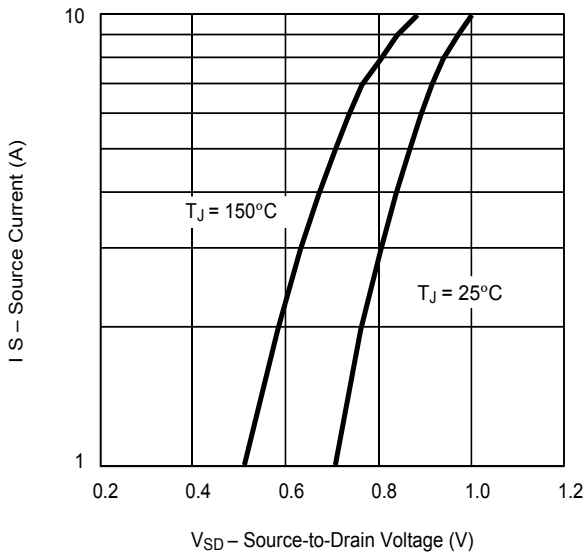
**LOW VOLTAGE MOSFET (N-CHANNEL)**

**Typical Characteristics**

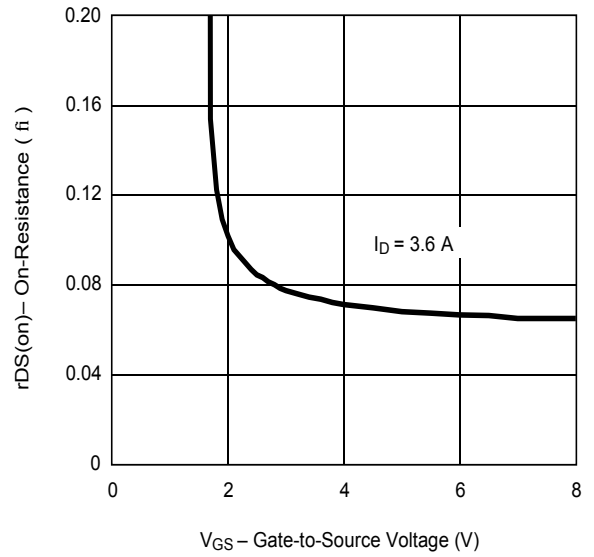


**LOW VOLTAGE MOSFET (N-CHANNEL)**

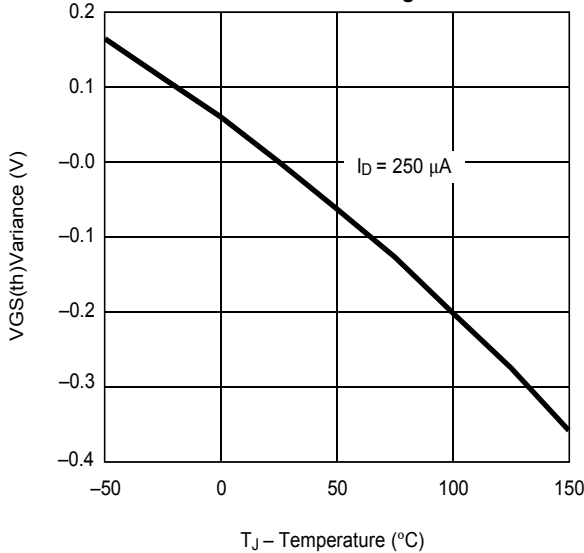
**Source-Drain Diode Forward Voltage**



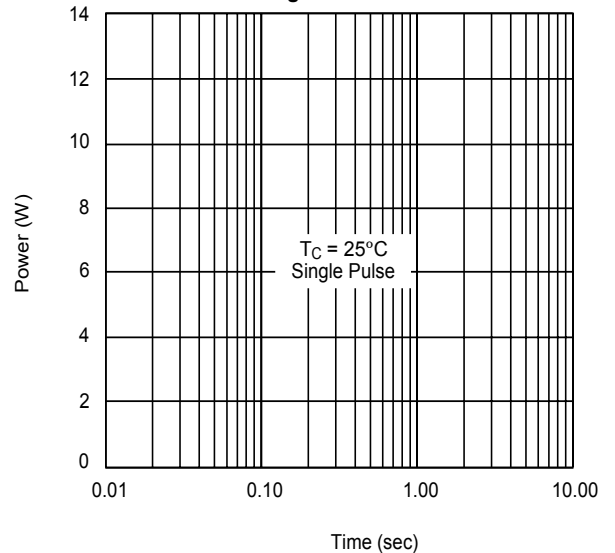
**On-Resistance vs. Gate-to-Source Voltage**



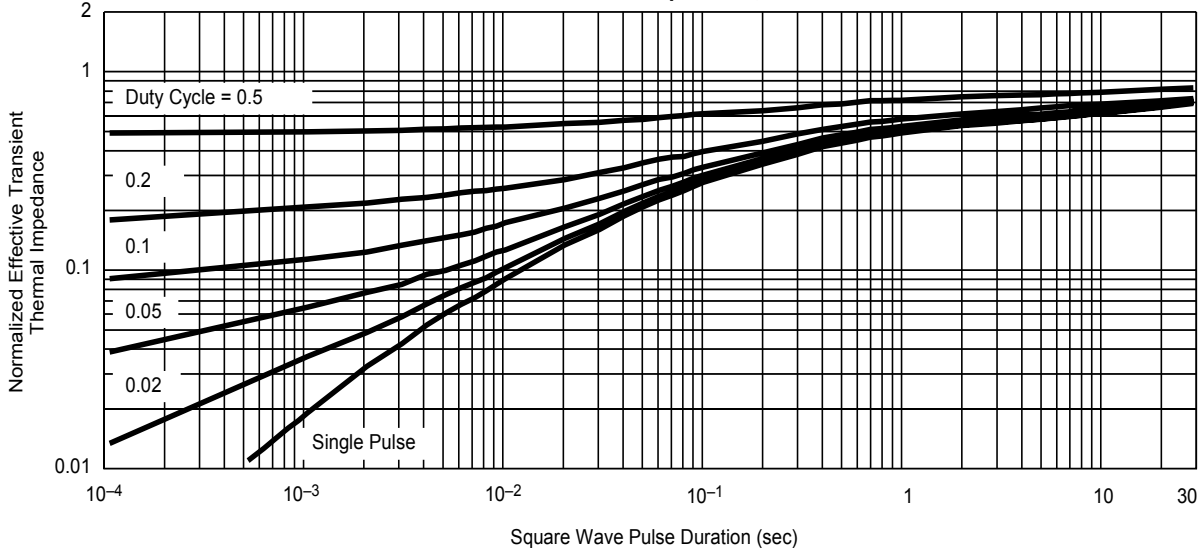
**Threshold Voltage**



**Single Pulse Power**

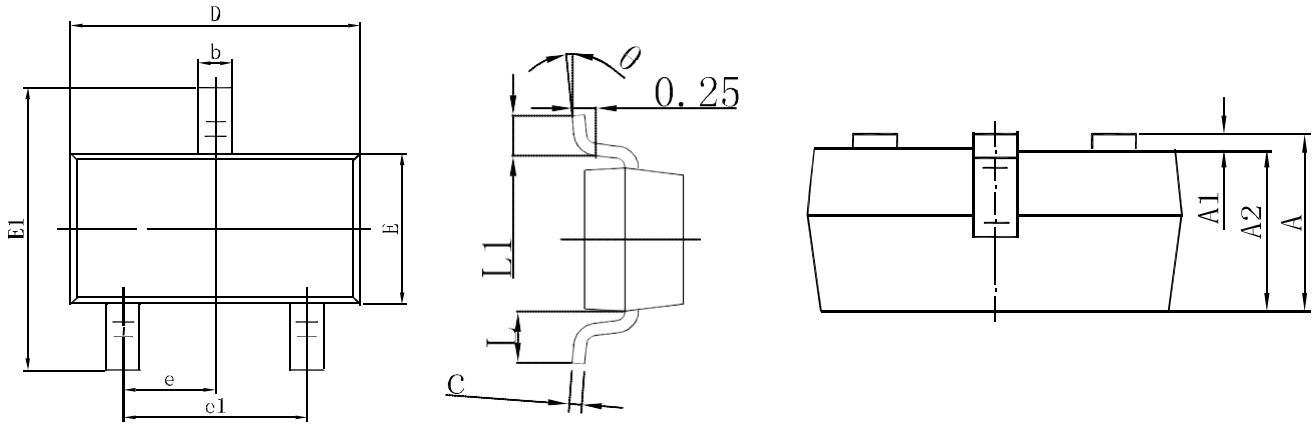


**Normalized Thermal Transient Impedance, Junction-to-Ambient**



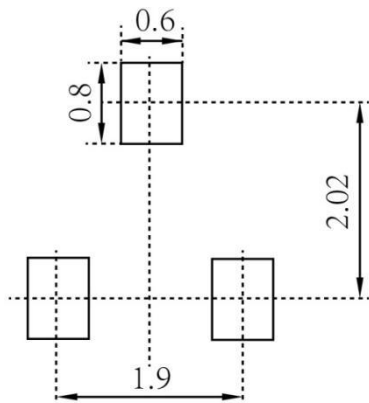
LOW VOLTAGE MOSFET (N-CHANNEL)

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



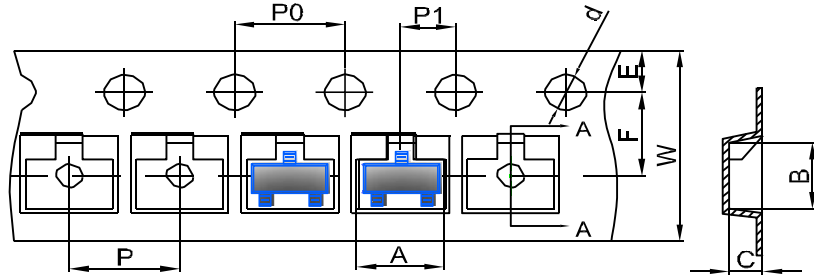
**Note:**

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)

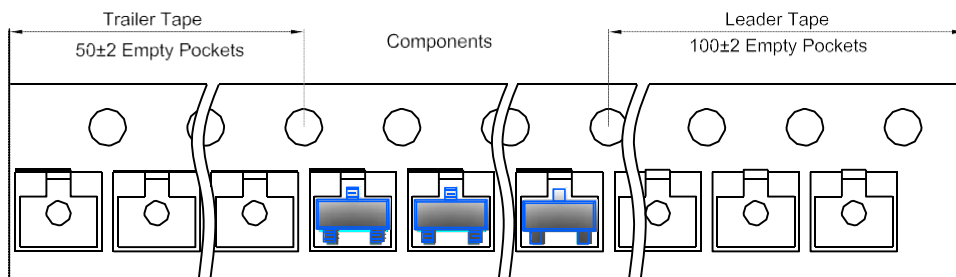
**SOT-23 Tape and Reel**

**SOT-23 Embossed Carrier Tape**

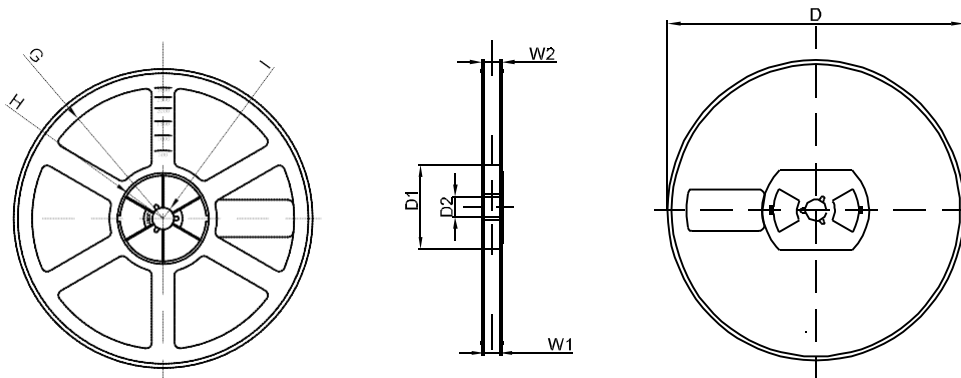


DIMENSIONS ARE IN MILLIMETER										
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

**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