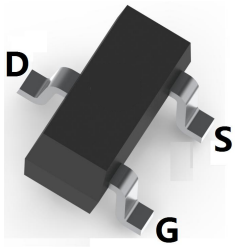
MOSFET (N-CHANNEL)



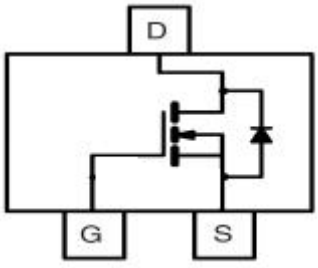
SOT-23

FEATURES

- Low On-Resistance: $R_{DS(ON)}$
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage

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}	60	V
Drain-gate voltage (R_{GS} = 20 kΩ)	V_{DGR}	60	V
Gate-source voltage	V_{GS}	±20V	V
Continuous drain current	I_D	115	mA
Pulsed drain current (Note 1)	I_{DM}	800	mA
Power dissipation	P_D	0.35	W
Thermal resistance from Junction to ambient	$R_{\theta JA}$	357	°C/W
Junction And Storage temperature Range	T_J,T_{STG}	-65 ~+150	°C

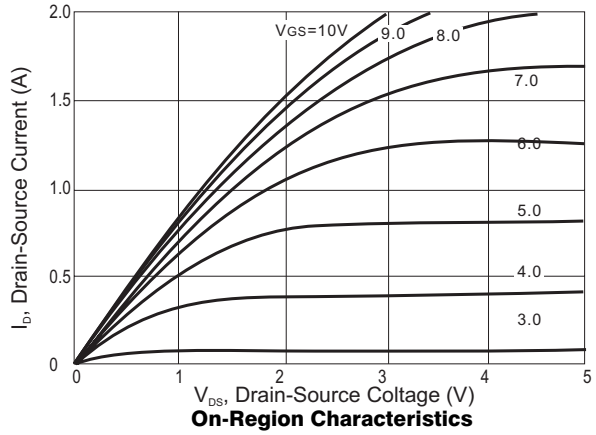
ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

Parameter	Symb	Min	Typ	Max	Unit	Conditions
Static Characteristics						
Drain-Source breakdown voltage	$V_{(BR)DSS}$	60			V	V_{GS}=0V, I_D=250μA
Gate-threshold voltage (note 1)	$V_{GS(th)}$	1	2.1	2.5	V	V_{DS}= V_{GS}, I_D=250μA
Zero gate voltage drain current	I_{DSS}			80	nA	V_{DS}=60V, V_{GS}=0V
Gate-body leakage current	I_{GSS}			±80	nA	V_{DS}=0V, V_{GS}=±20V
On-state Drain Current	$I_{D(ON)}$	500			mA	V_{GS}=10V, V_{DS}=7V
Drain-source on-resistance (note 1)	$R_{DS(ON)}$			5	Ω	V_{GS}=10V, I_D=500mA
				7	Ω	V_{GS}=5V, I_D=50mA
Forward Trans conductance	g_{fs}	80			ms	V_{DS}=10V, I_D=200mA
Drain-source on-voltage	$V_{DS(on)}$			3.75	V	V_{GS}=10V, I_D=500mA
				0.37		V_{GS}=5V, I_D=50mA
Diode forward voltage (note 1)	V_{SD}	0.55		1.2	V	I_S=115mA, V_{GS}=0V
Dynamic Characteristics						
Input capacitance	C_{iss}			50	pF	V_{DS}=25V, V_{GS}=0V, f=1MHz
Output capacitance	C_{oss}			25	pF	
Reverse transfer capacitance	C_{rss}			5	pF	
Switching Characteristics						
Turn-on delay time	$t_{d(on)}$			20	nS	V_{DD}=25V,V_{GEN}=10V,R_G=25Ω, I_D=500mA,R_L=50Ω
Turn-off delay time	$t_{d(off)}$			40	nS	

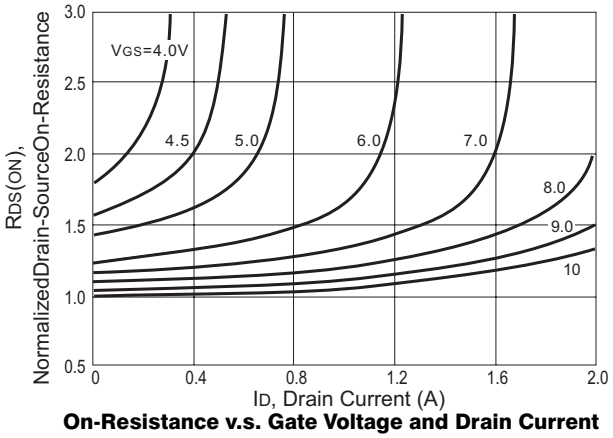
Note:1. Pulse test ; Pulse width ≤300μs, Duty cycle ≤ 2% .

MOSFET (N-CHANNEL)

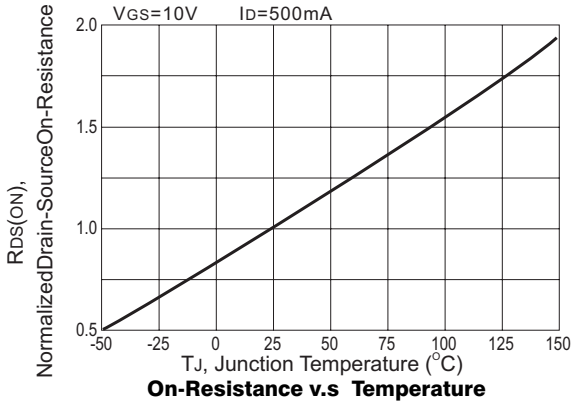
Typical Characteristics



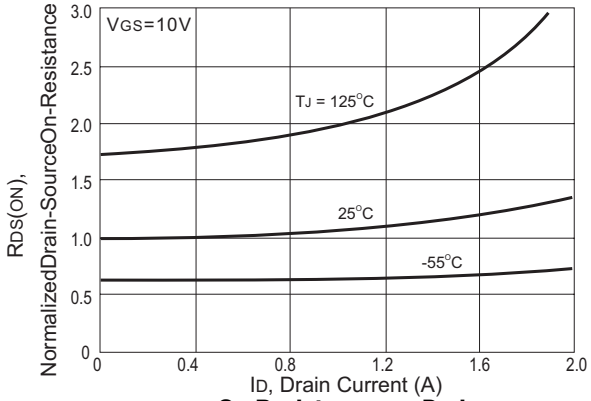
On-Region Characteristics



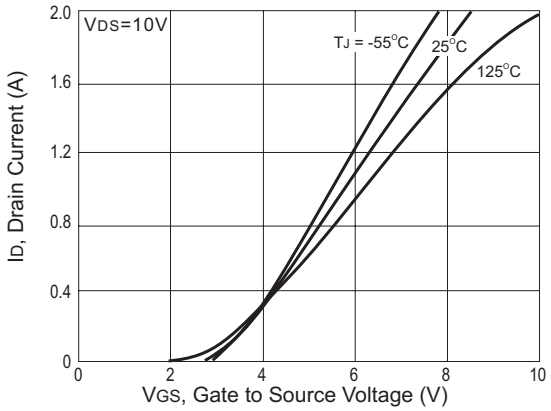
On-Resistance v.s. Gate Voltage and Drain Current



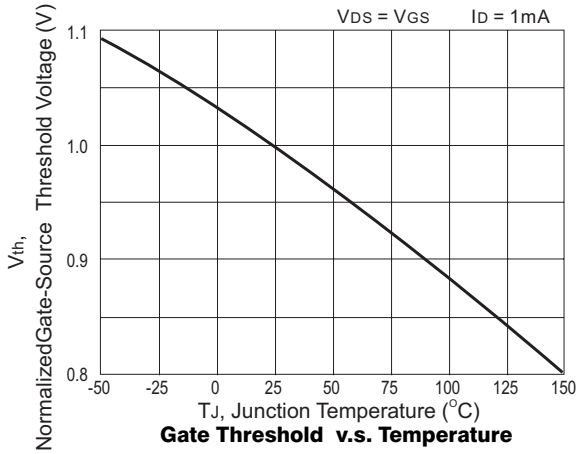
On-Resistance v.s Temperature



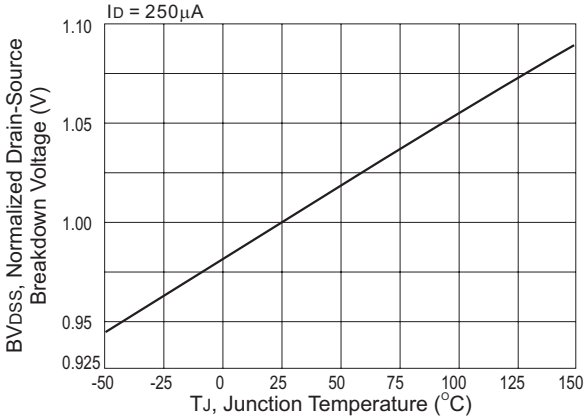
On-Resistance v.s Drain



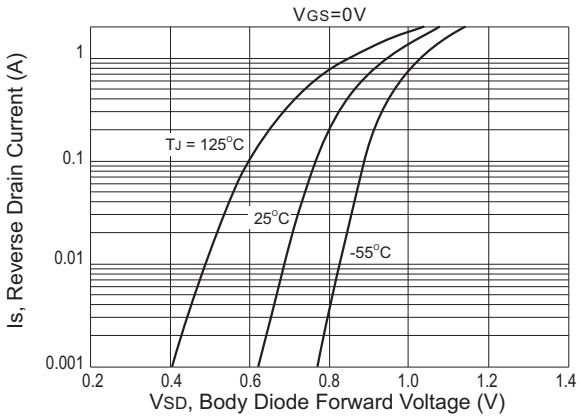
Transfer Characteristics



Gate Threshold v.s. Temperature

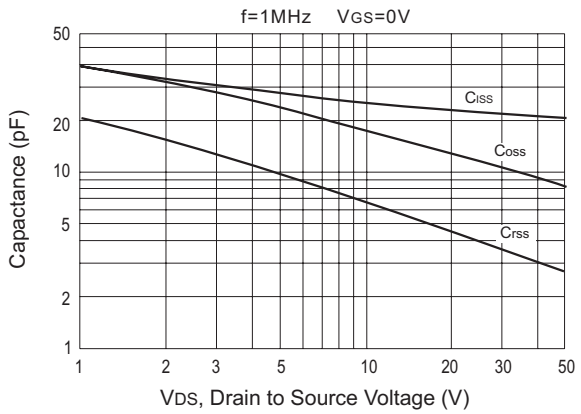


Breakdown Voltage v.s. Temperature

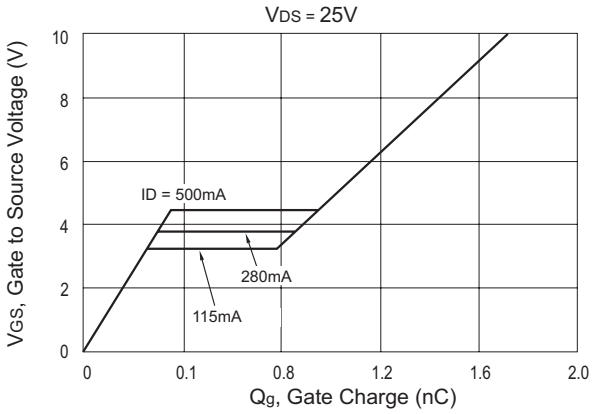


Body Diode Forward Voltage v.s. Current and Temperature

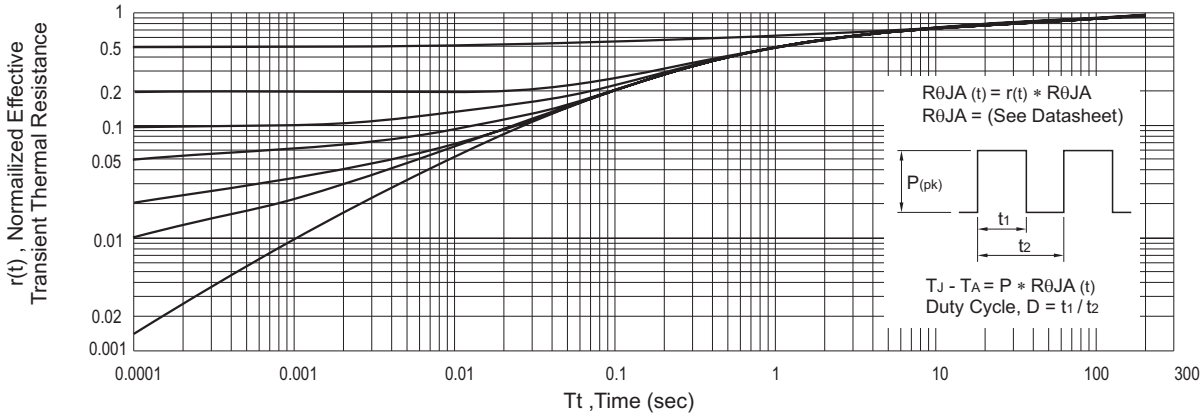
MOSFET (N-CHANNEL)



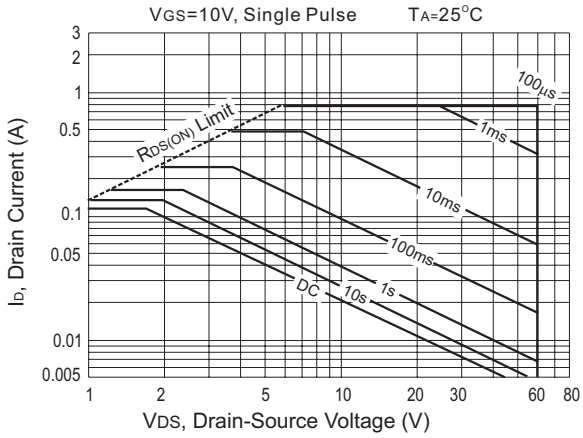
Capacitance Characteristics



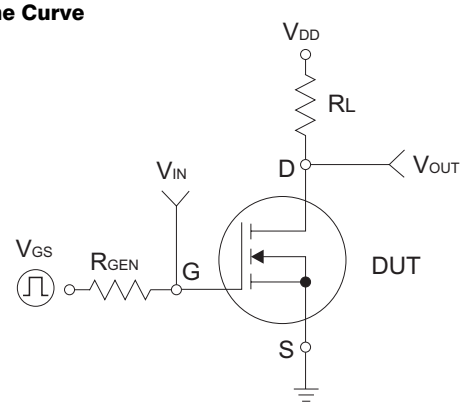
Gate Charge Characteristics



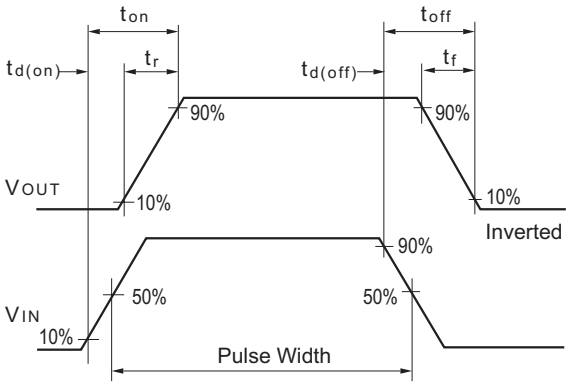
Transient Thermal Respone Curve



Maximum Safe Operating Area



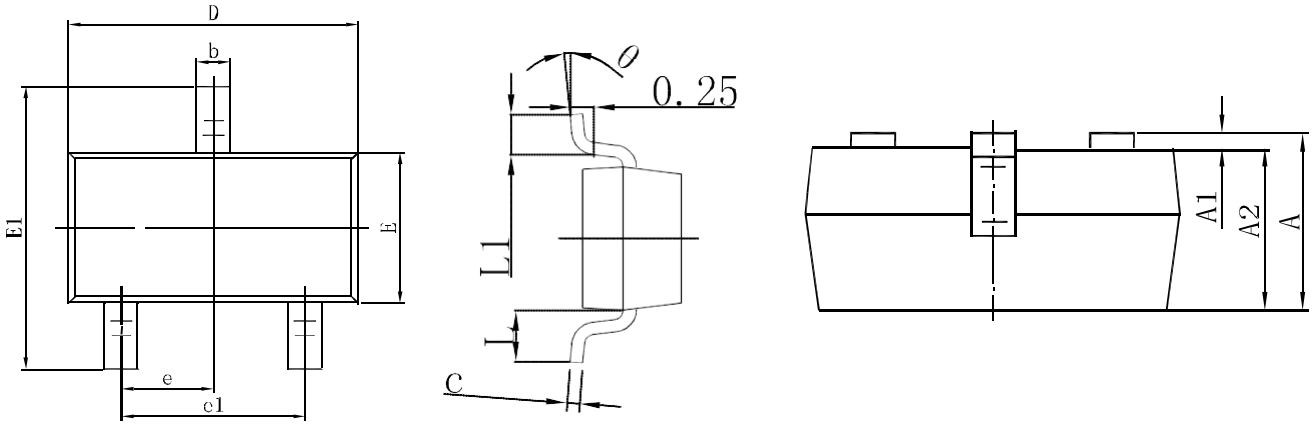
Switching Test Circuit



Switching Waveforms

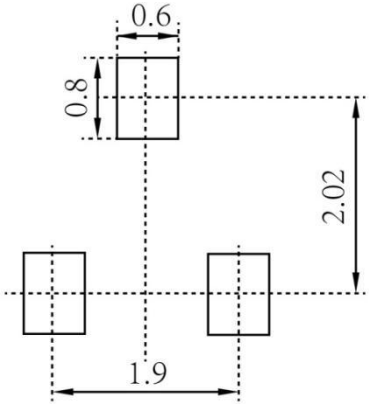
MOSFET (N-CHANNEL)

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

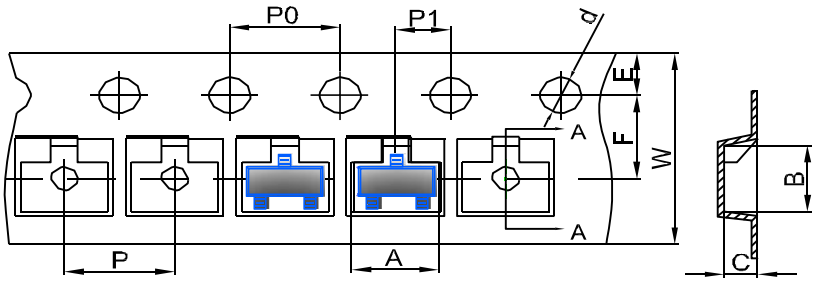
2.General tolerance: ±0.05mm

3.The pad layout is for reference purposes only

MOSFET (N-CHANNEL)

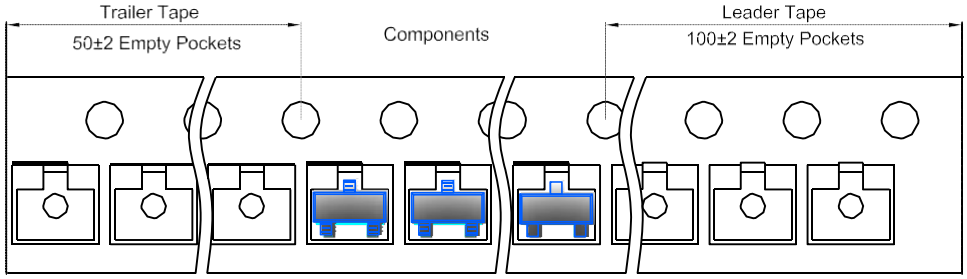
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

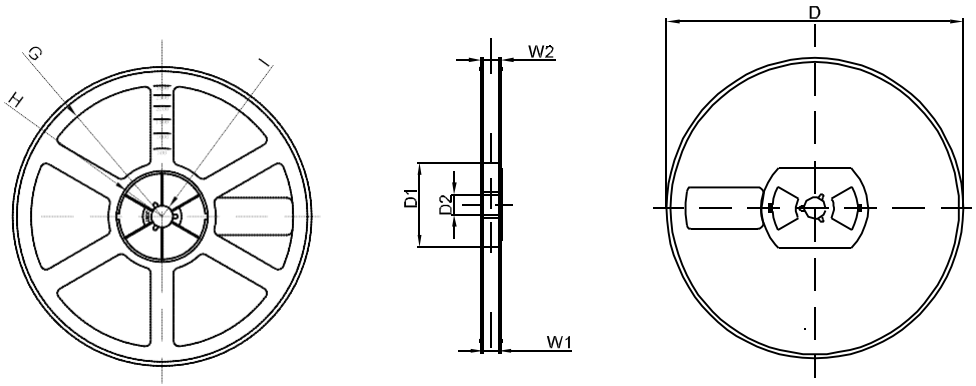


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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