

**60V,0.34A
N-Channel Mosfet**

FEATURES

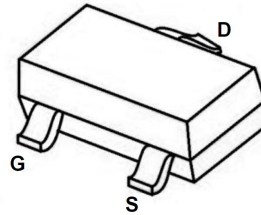
$R_{DS(ON)} \leq 2.3 \Omega @V_{GS}=10V$

$R_{DS(ON)} \leq 2.7 \Omega @V_{GS}=4.5V$

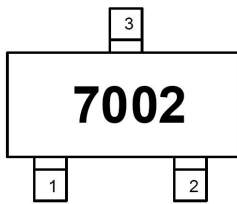
APPLICATIONS

Portable appliances

SOT-23

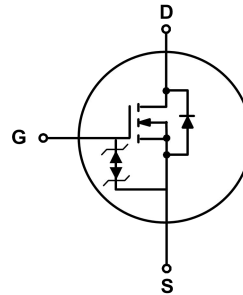


MARKING



7002:Device Code

N-CHANNEL MOSFET



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	
Continuous Drain Current*	I_D^*	0.34	A
Pulsed Drain Current*	I_{DM}^*	1.7	
Maximum Continuous Drain to Source Diode Forward*	I_S^*	0.34	
Maximum Power Dissipation ($T_a=25^\circ\text{C}$)*	P_D^*	0.83	W
Thermal Resistance from Junction to Ambient($t \leq 5s$)	$R_{\theta JA}$	150	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 ~ +150	

MOSFET ELECTRICAL CHARACTERISTICS Ta=25 °C unless otherwise specified

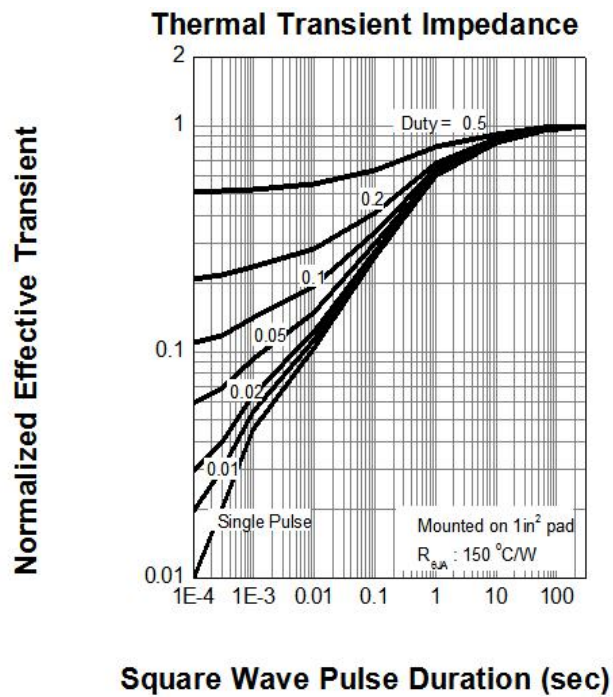
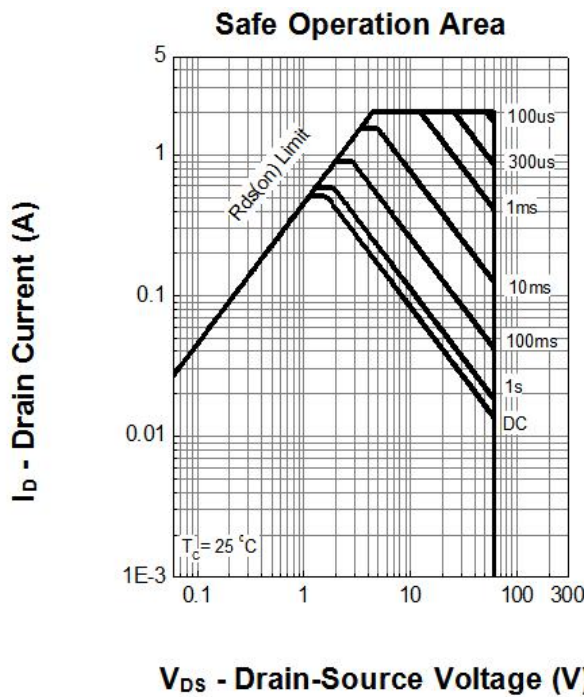
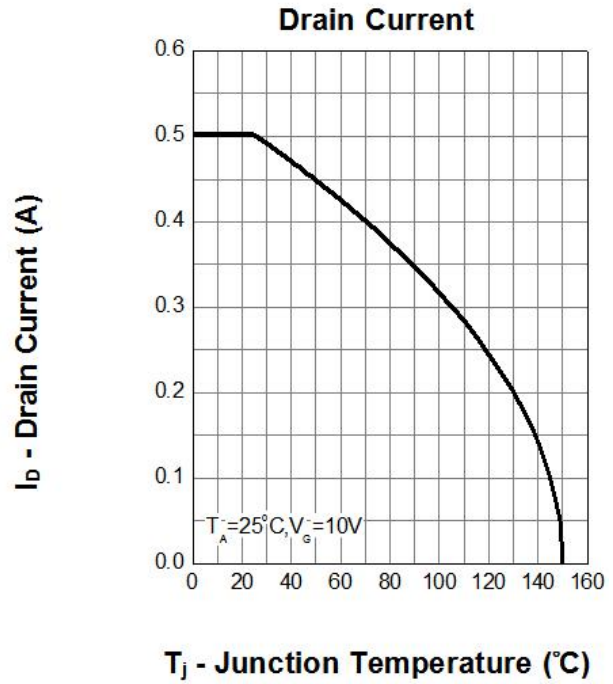
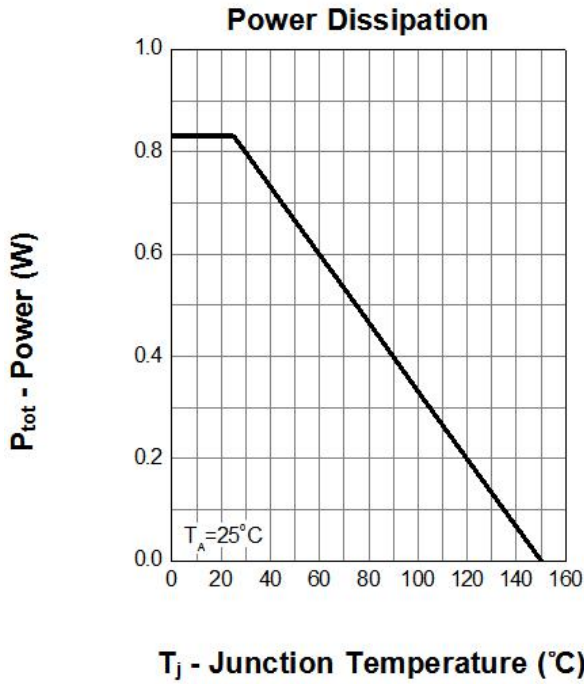
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0 V, I _{DS} = 250 μA	60	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _{DS} = 250 μA	1.0	1.5	2.5	V
I _{DSS}	Drain Leakage Current	V _{DS} = 48 V, V _{GS} = 0 V	-	-	1	μA
		T _J = 85 °C	-	-	30	μA
I _{GSS}	Gate Leakage Current	V _{GS} = ± 20 V, V _{DS} = 0 V	-	-	± 10	μA
R _{DS(ON)} ^a	On-State Resistance	V _{GS} = 10 V, I _{DS} = 0.5 A	-	-	2.3	Ω
		V _{GS} = 4.5 V, I _{DS} = 0.1 A	-	-	2.7	
Diode Characteristics						
V _{SD} ^a	Diode Forward Voltage	I _{SD} = 0.5 A, V _{GS} = 0 V	-	-	1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} = 0.5 A, dI _{SD} / dt = 100 A / μs	-	42	-	ns
Q _{rr}	Reverse Recovery Charge		-	41	-	nC
Dynamic Characteristics^b						
R _G	Gate Resistance	V _{GS} = V _{DS} = 0 V, F = 1 MHz	-	100	-	Ω
C _{iss}	Input Capacitance	V _{GS} = 0 V, V _{DS} = 25 V Frequency = 1 MHz	-	22.8	-	pF
C _{oss}	Output Capacitance		-	3.5	-	
C _{rss}	Reverse Transfer Capacitance		-	2.9	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} = 30 V, V _{GEN} = 10 V, R _G = 25 Ω, R _L = 60 Ω, I _{DS} = 0.5 A	-	3.8	-	ns
t _r	Turn-on Rise Time		-	3.4	-	
t _{d(off)}	Turn-off Delay Time		-	19	-	
t _f	Turn-off Fall Time		-	12	-	
Q _g	Total Gate Charge	V _{GS} = 4.5 V, V _{DS} = 10 V, I _{DS} = 0.5 A	-	280	-	pC
Q _{gs}	Gate-Source Charge		-	82	-	
Q _{gd}	Gate-Drain Charge		-	201	-	

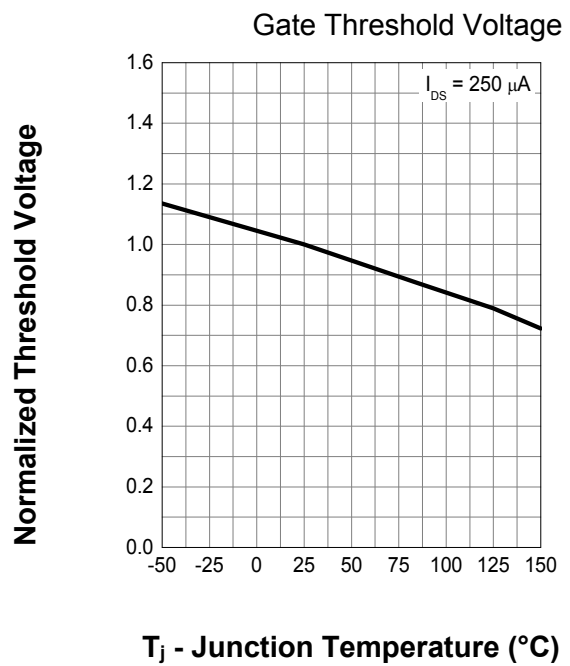
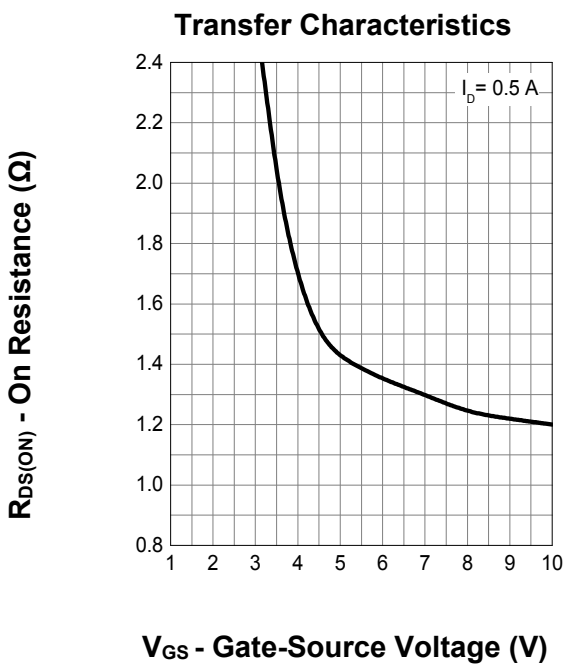
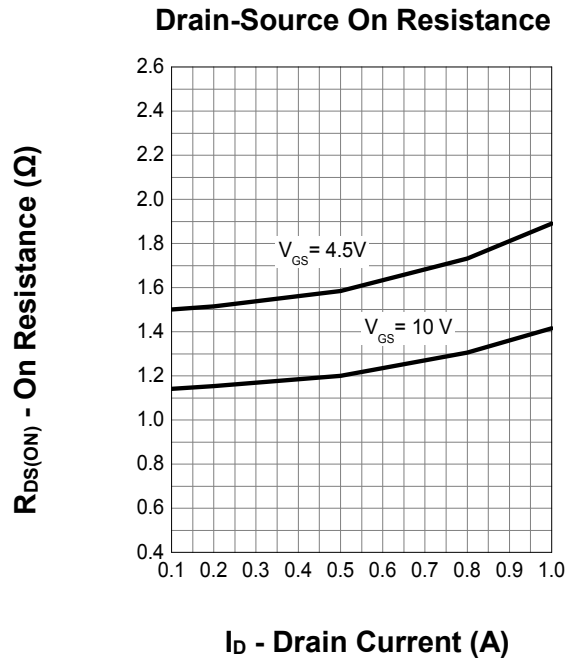
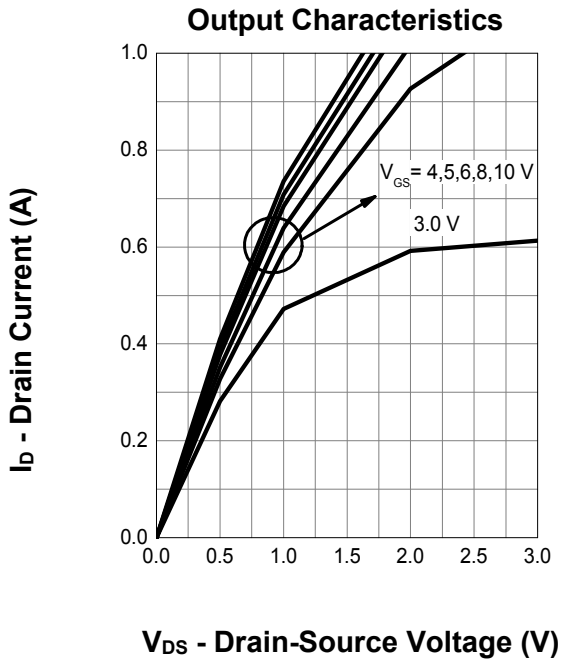
Notes:

a : Pulse test ; pulse width ≤ 300 μs, duty cycle ≤ 2 %

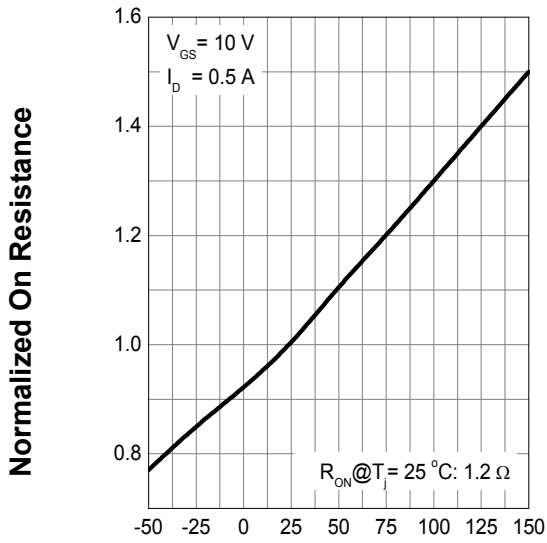
b : Guaranteed by design, not subject to production testing

Typical Performance Characteristics

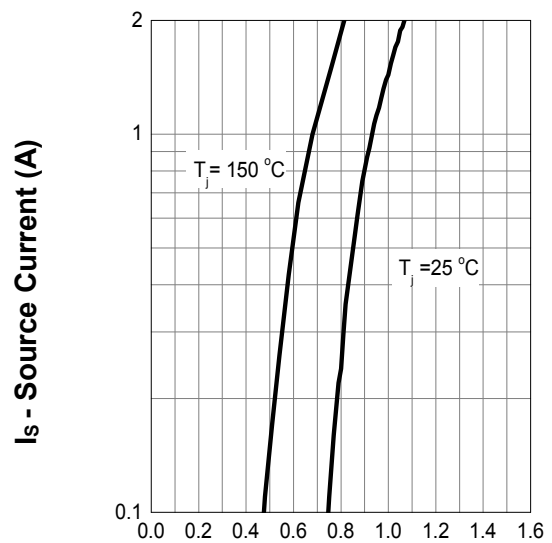




Drain-Source On Resistance



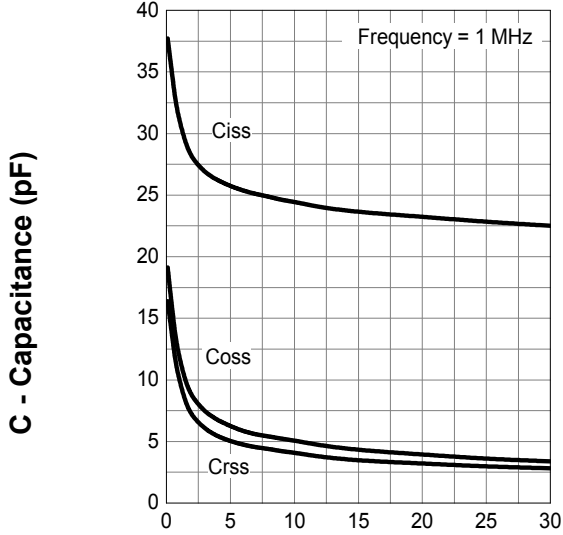
Source-Drain Diode Forward



T_j - Junction Temperature ($^{\circ}\text{C}$)

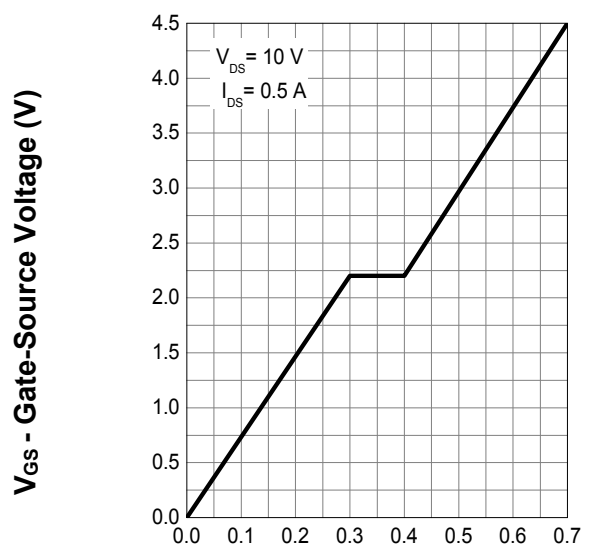
V_{SD} - Source-Drain Voltage (V)

Capacitance

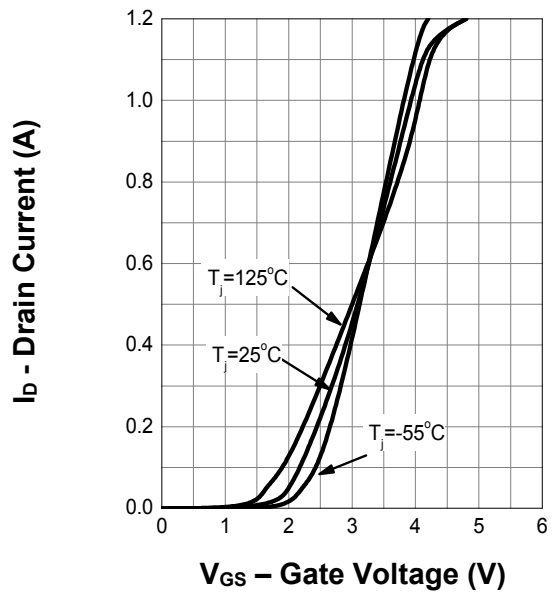
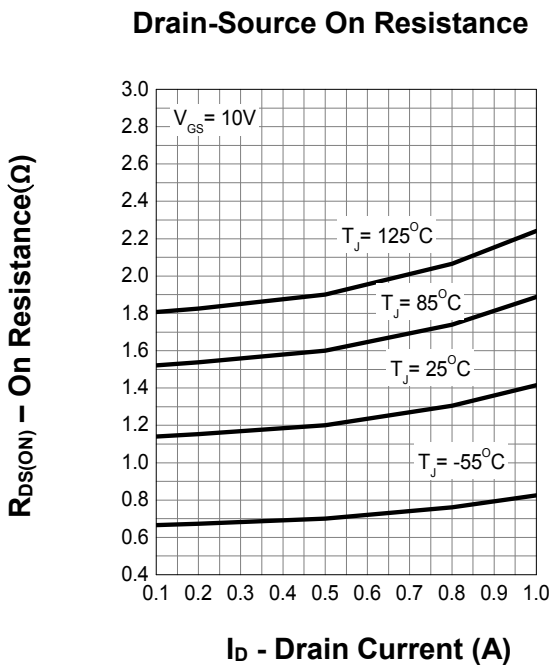
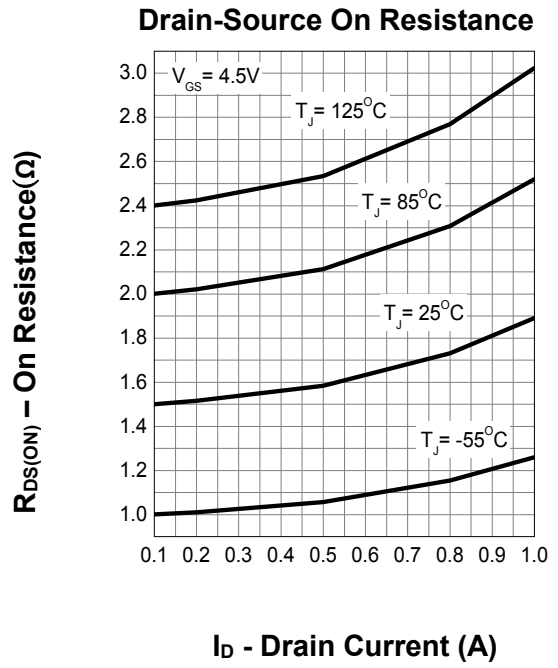
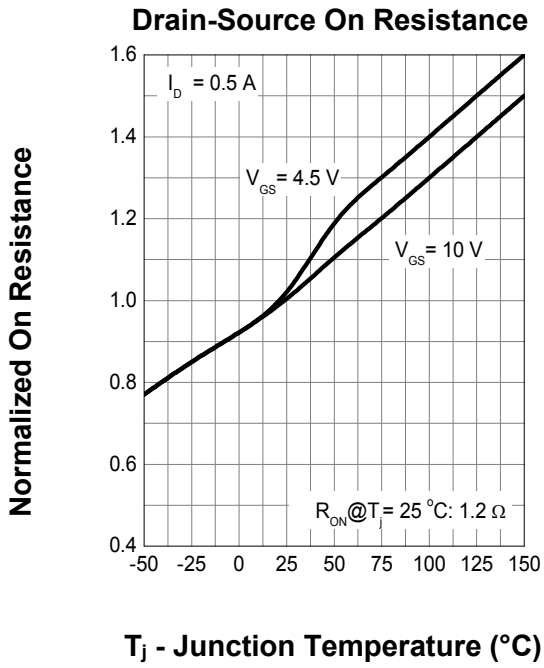


V_{DS} - Drain-Source Voltage (V)

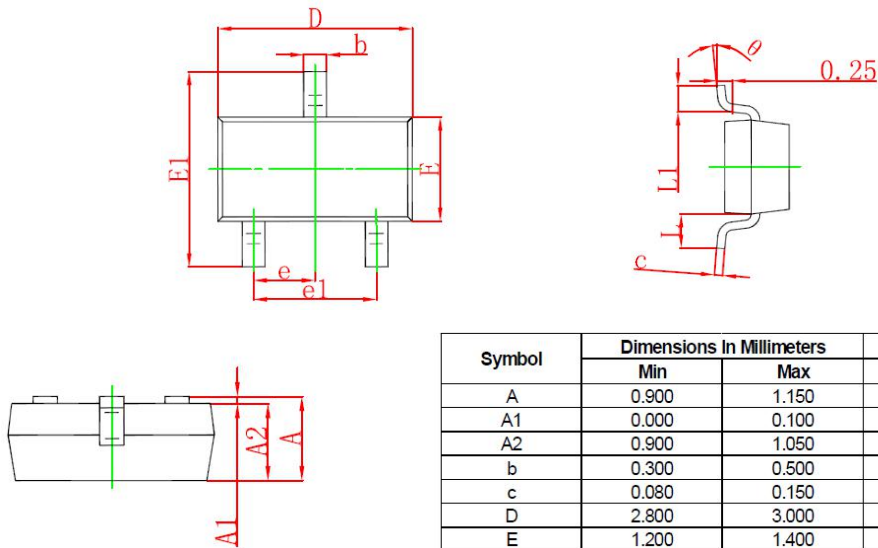
Gate Charge



Q_G - Gate Charge (pC)

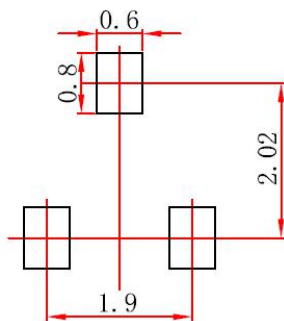


SOT-23 package



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
theta	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.

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