

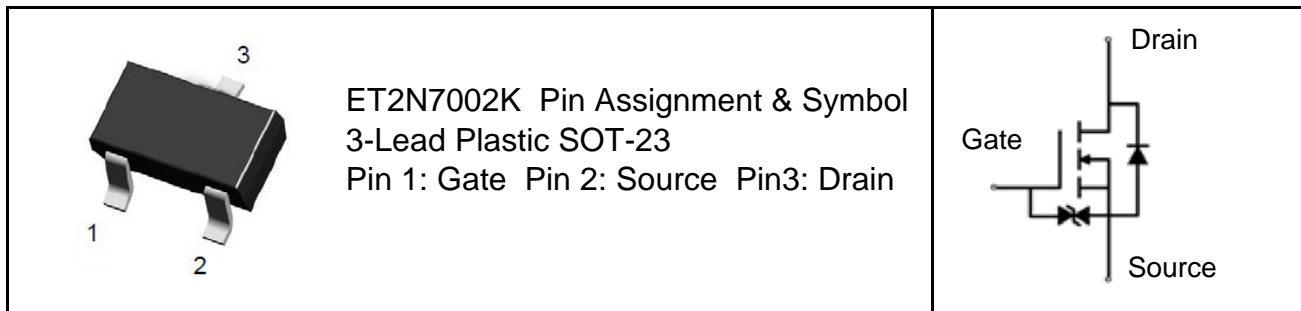
N-Channel High Density Trench MOSFET (60V,0.5A)

PRODUCT SUMMARY

V_{DSS}	I_D	$R_{DS(on)}$ (m Ω)Typ
60V	500mA	2.5 @ $V_{GS} = 10V, I_D=0.5A$
		3.0 @ $V_{GS} = 5V, I_D=0.05A$

Features

- High speed switch
- Advanced Trench Process Technology
- SOT-23 package
- ESD protected up to 2KV
- Lead (Pb) -free and halogen-free



Absolute Maximum Ratings ($T_A=25^{\circ}C$, unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 15	V
I_D	Drain Current (Continuous)	0.2	A
I_{DM}	Drain Current (Pulsed) ^a	0.8	A
P_D	Total Power Dissipation @ $T_A=25^{\circ}C$	0.3	W
I_S	Maximum Diode Forward Current	0.5	A
T_J, T_{stg}	Operating Junction and Storage Temperature Range	-55 to +150	$^{\circ}C$
R_{QJA}	Thermal Resistance Junction to Ambient (PCB mounted) ^b	357	$^{\circ}C/W$

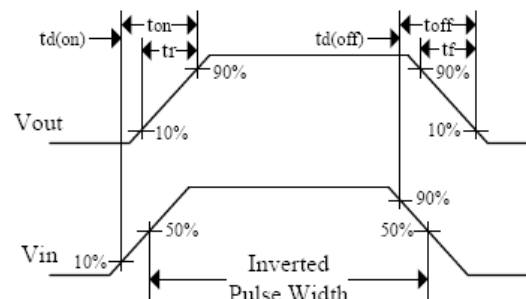
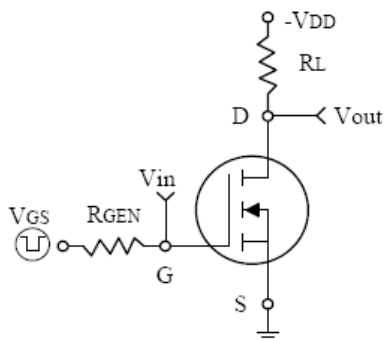
a: Repetitive Rating: Pulse width limited by the maximum junction temperature.

b: 1-in² 2oz Cu PCB board

Electrical Characteristics (T_A=25°C, unless otherwise noted)

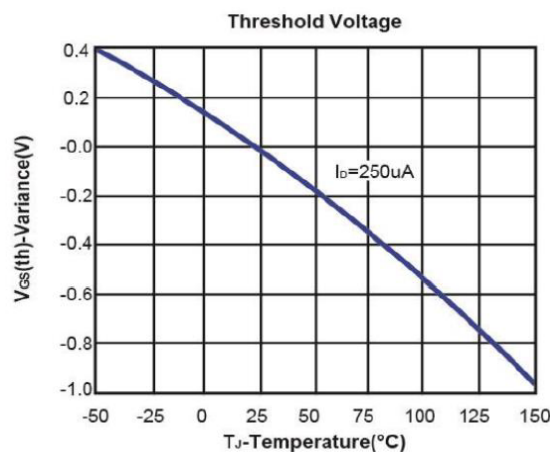
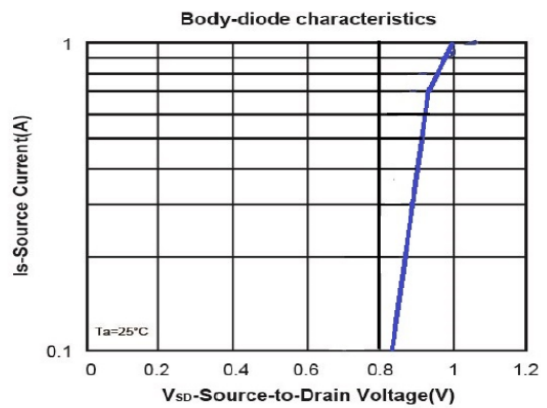
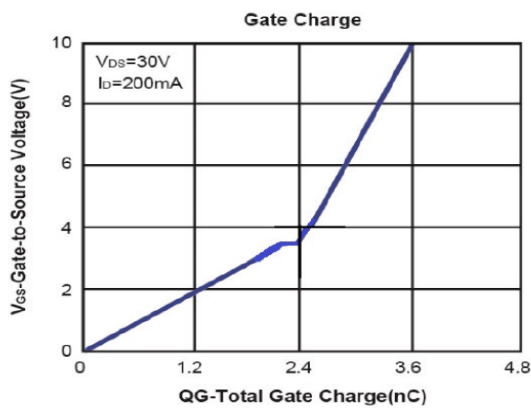
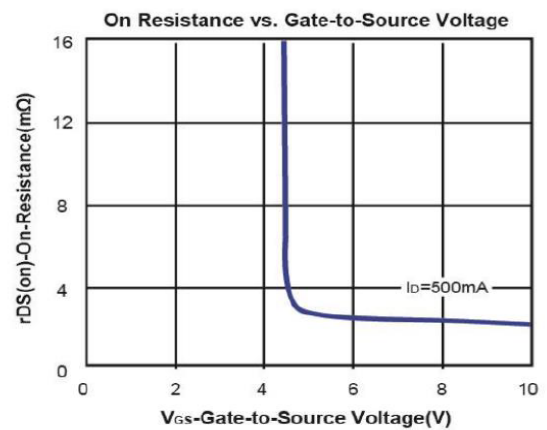
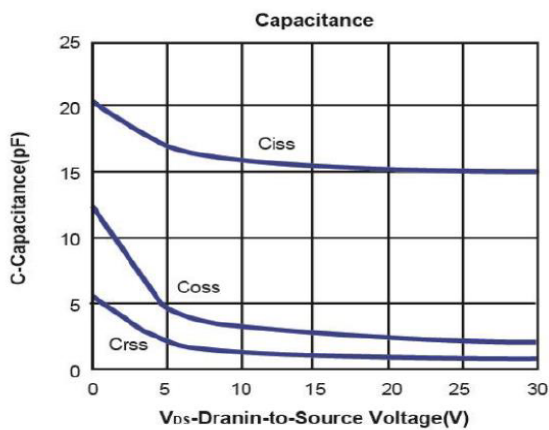
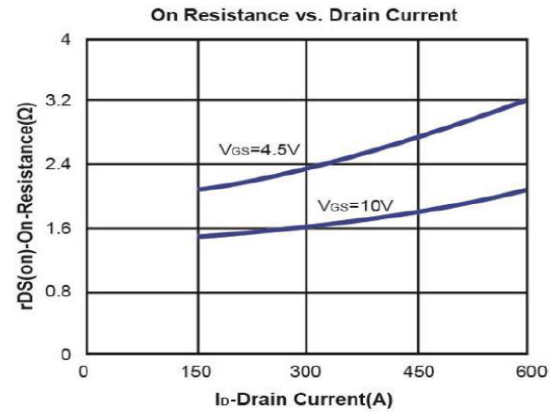
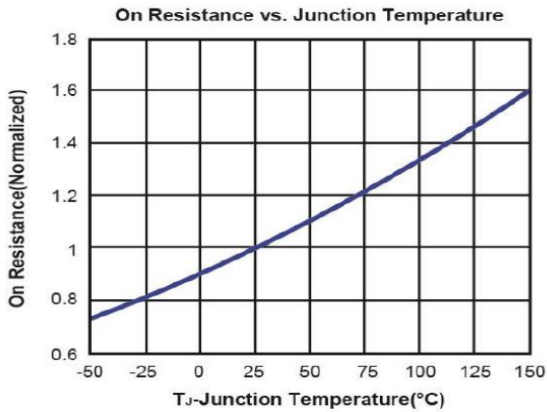
Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
• Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =10μA	60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V	-	-	1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±15V, V _{DS} =0V	-	-	±1	μA
• On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.35	-	0	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =0.5A	-	2.5	4.0	Ω
		V _{GS} =5V, I _D =0.05A	-	3.0	4.0	
• Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	-	-	60	PF
C _{oss}	Output Capacitance		-	-	30	
C _{rss}	Reverse Transfer Capacitance		-	-	10	
• Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} =15V, R _L =23Ω, I _D =0.5A, V _{GEN} =10V, R _G =25Ω	-	-	15	nS
t _{d(off)}	Turn-off Delay Time		-	-	15	
• Drain-Source Diode Characteristics						
V _{SD}	Drain-Source Diode Forward	V _{GS} =0V, I _S =0.2A	-	-	2.5	V

Note: Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%

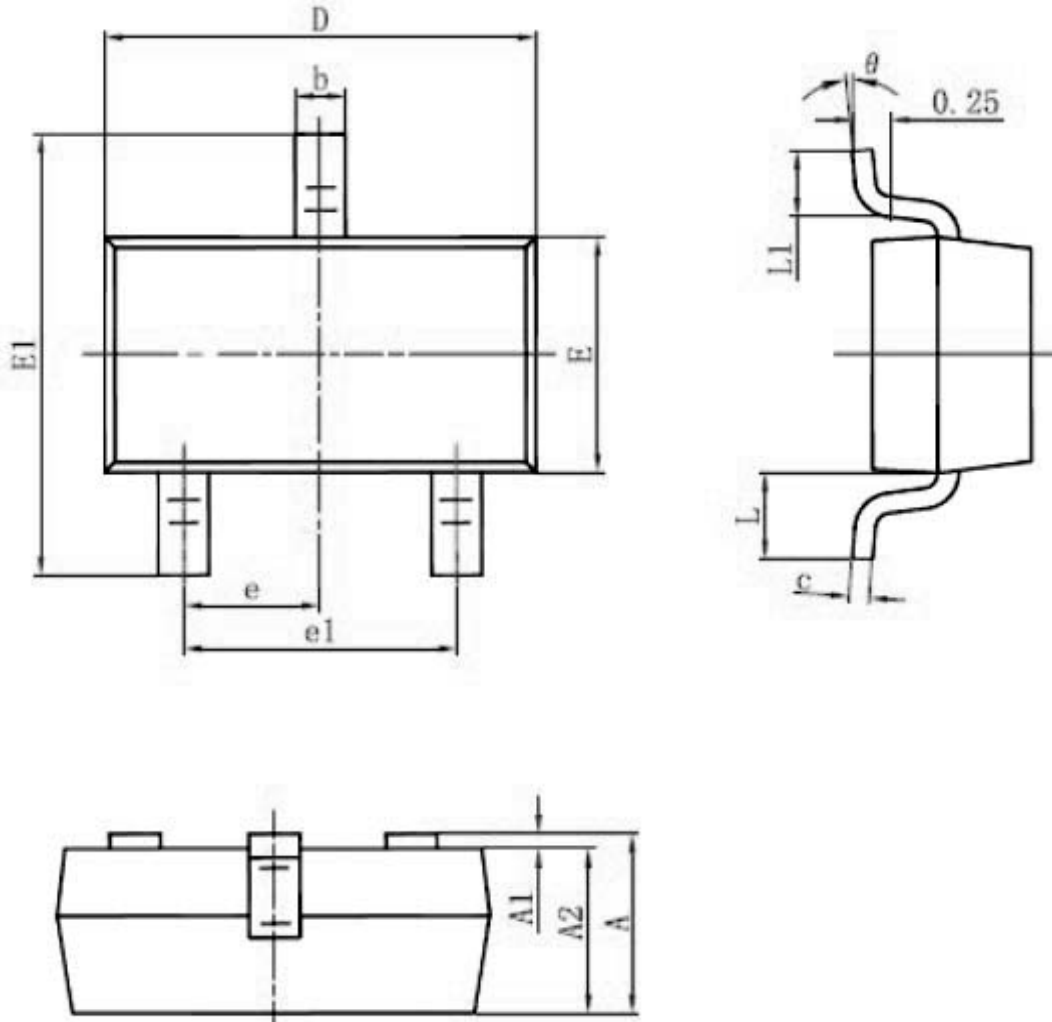


Switching Test Circuit and Switching Waveforms

Typical Characteristics Curves (Ta=25°C, unless otherwise note)



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°