

60V N-Channel MOSFET

Product Summary

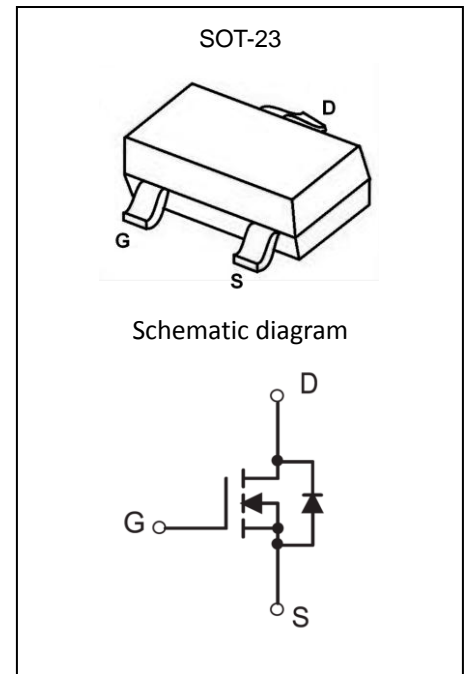
$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	5Ω@10V	115mA
	7Ω@5V	

Feature

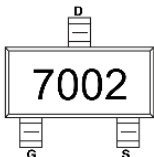
- High density cell design for Low $R_{DS(on)}$
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability
- AEC-Q101 qualified (Automotive grade with suffix "Q".)
- Exsemi technology

Application

- DC/DC Converter
- Load Switch for Portable Devices
- Battery Switch



MARKING:

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

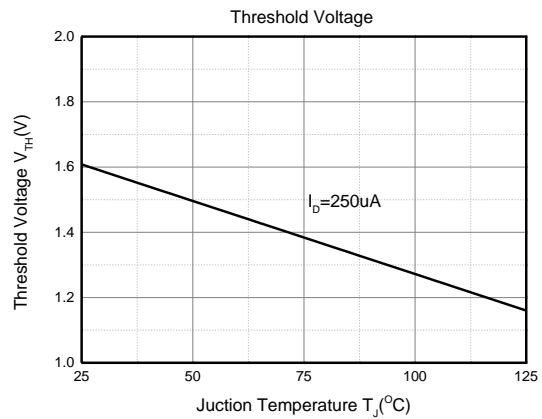
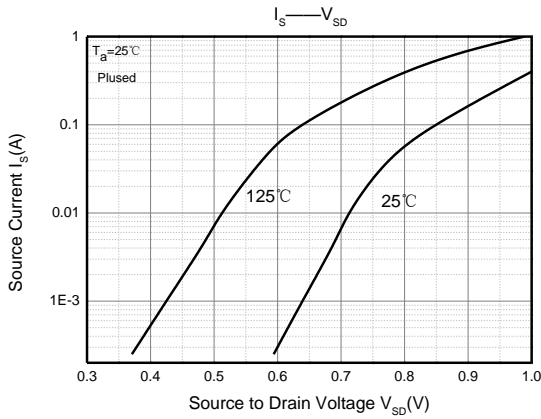
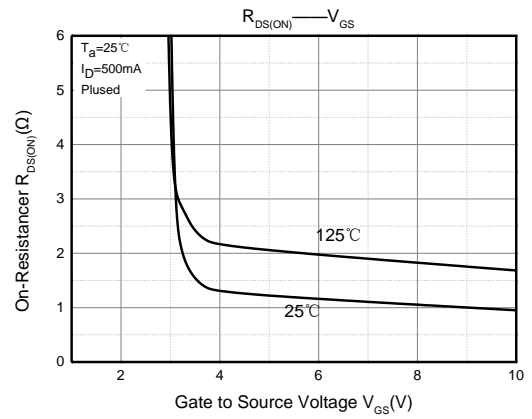
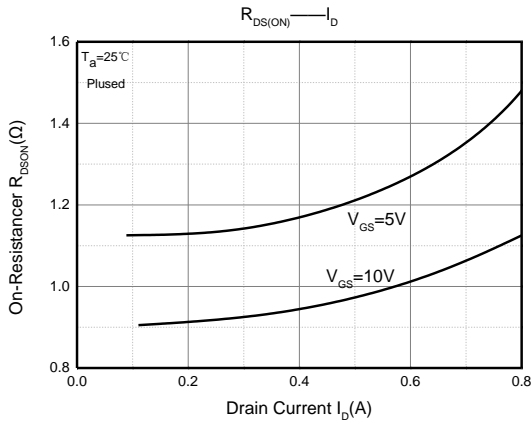
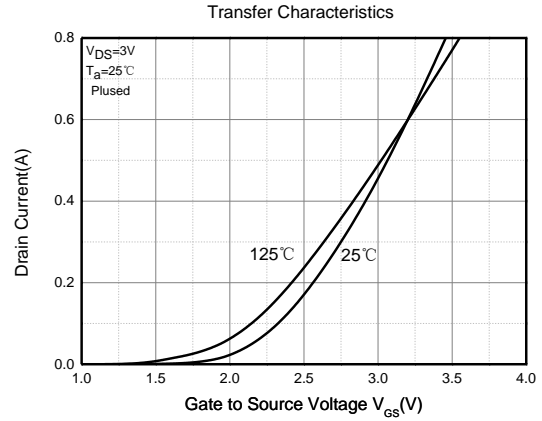
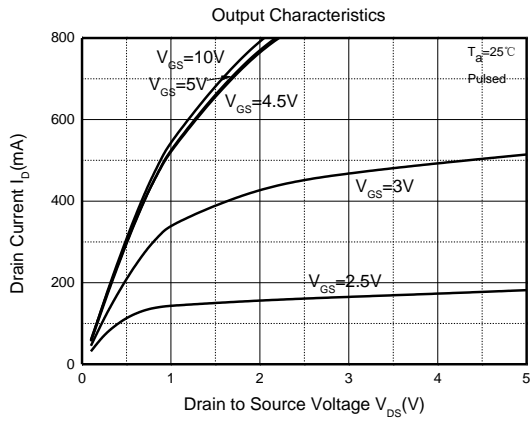
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	115	mA
Power Dissipation	P_D	0.225	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

MOSFET ELECTRICAL CHARACTERISTICS($T_a=25^\circ\text{C}$ unless otherwise noted)

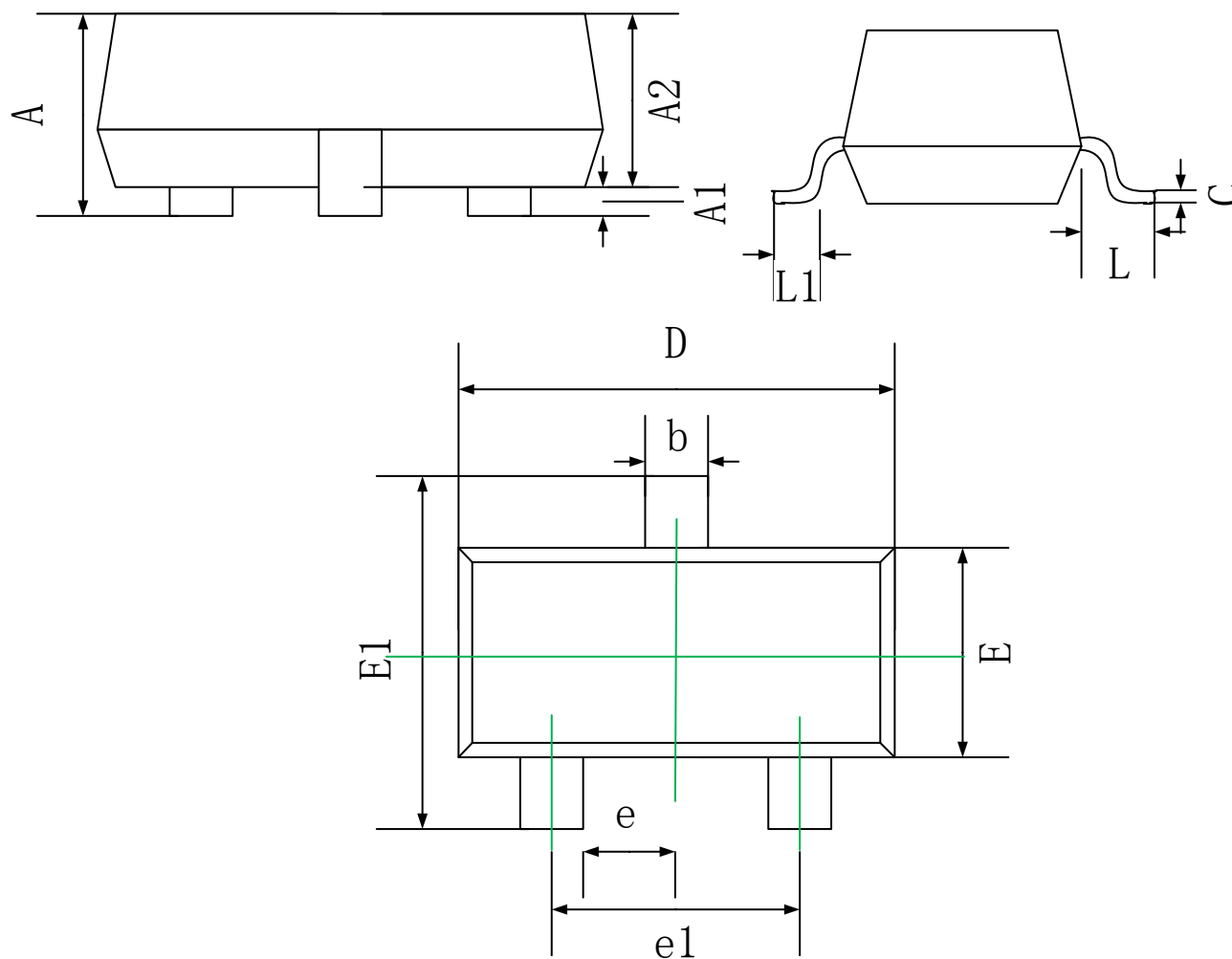
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 60V, V_{GS} = 0V$			80	nA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 80	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.6	2.5	V
On-state drain current	$I_{D(on)}$	$V_{GS} = 10V, V_{DS} = 7V$	500			mA
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 500mA$		0.9	5	Ω
		$V_{GS} = 5V, I_D = 50mA$		1.0	7	
On-state drain-source voltage	$V_{DS(on)}$	$V_{GS} = 10V, I_D = 500mA$			3.75	V
		$V_{GS} = 5V, I_D = 50mA$			0.375	
Dynamic characteristics						
Input Capacitance*	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$			50	pF
Output Capacitance*	C_{oss}				25	
Reverse Transfer Capacitance*	C_{rss}				5	
Switching Characteristics						
Turn-on delay time*	$t_{d(on)}$	$V_{DD} = 25V, R_L = 50\Omega$			20	ns
Turn-off delay time*	$t_{d(off)}$	$I_D = 500mA, V_{GEN} = 10V, R_G = 25\Omega$			40	
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	$V_{GS} = 0V, I_S = 115mA$	0.55		1.2	V

*These parameters have no way to verify.

Typical Characteristics



SOT-23 Package Information



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.90	1.15
A1	0.00	0.10
A2	0.90	1.05
b	0.30	0.50
c	0.08	0.15
D	2.80	3.05
E	1.20	1.40
E1	2.25	2.55
e	0.95 REF.	
e1	1.80	2.00
L	0.55 REF.	
L1	0.30	0.50

Ordering information

Device	Package	Shipping
2N7002	SOT-23	3000/Tape&Reel(7inches)