

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	5.0Ω@10V	0.34A
	5.3Ω@4.5V	

Feature

- ESD protection
- Advanced trench process technology
- High density cell design for ultra low on-resistance
- Very low leakage current in off condition
- In compliance with EU RoHS 2002/95/EC directives.
- Halogen-free

Application

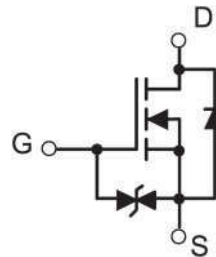
- Specially designed for battery operated system, solid-state relays drivers, relays, displays, lamps, solenoids, memories, etc.

Package

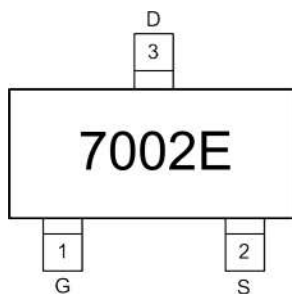


SOT-23

Circuit diagram



Marking



Absolute maximum ratings (Ta=25°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	0.34	A
Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55 ~ +150	°C

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

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	60			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =48V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS1}	V _{GS} =±20V, V _{DS} = 0V			±10	μA
	I _{GSS2}	V _{GS} =±10V, V _{DS} = 0V			±200	nA
	I _{GSS3}	V _{GS} =±5V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =1mA	1.0		2.5	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} =10V, I _D =0.5A		1.0	5.0	Ω
		V _{GS} =4.5V, I _D =0.2A		1.1	5.3	
Dynamic characteristics ²⁾						
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f =1MHz			40	pF
Output Capacitance	C _{oss}				30	
Reverse Transfer Capacitance	C _{rss}				10	
Recovered charge	Q _r	V _{GS} =0V, I _s =300mA, V _R =25V, dI _s /dt=-100A/μS		30		nC
Turn-on delay time	t _{d(on)}	V _{DD} =50V, R _L =250Ω, V _{GS} =10V, R _{GS} =50Ω, R _G =50Ω			10	nS
Turn-off delay time	t _{d(off)}				15	
Reverse recovery Time	trr	V _{GS} =0V, I _s =300mA, V _R =25V, Dis/dt=-100a/uS		30		nS
Source-Drain Diode characteristics						
Diode Forward voltage	V _{DS}	V _{GS} =0V, I _s =0.3A			1.5	V

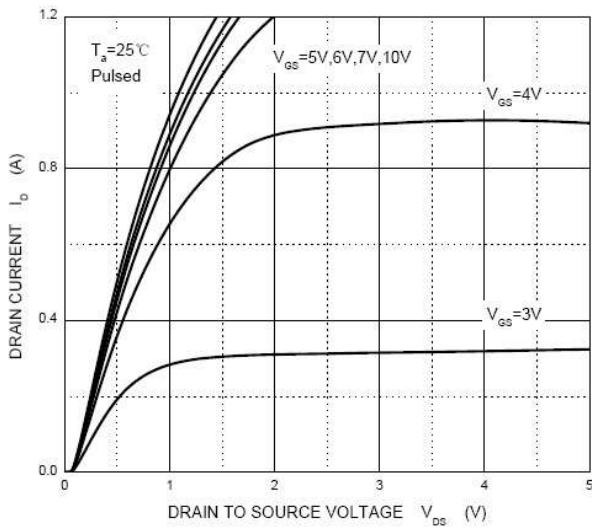
Notes:

1) Pulse Test: Pulse Width < 300μs, Duty Cycle ≤2%.

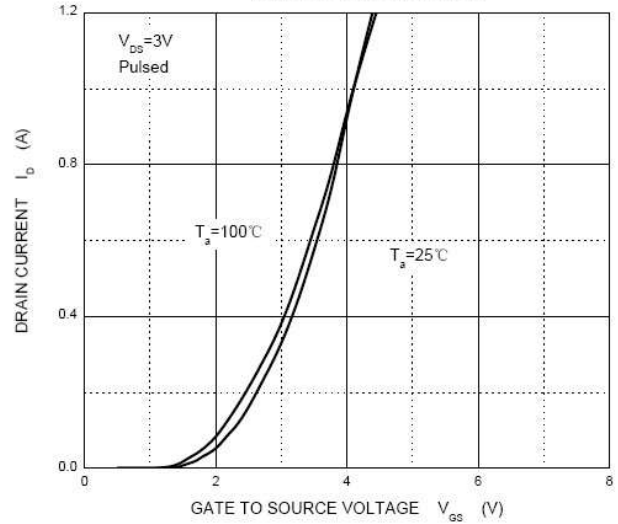
2) Guaranteed by design, not subject to production testing.

Typical Characteristics

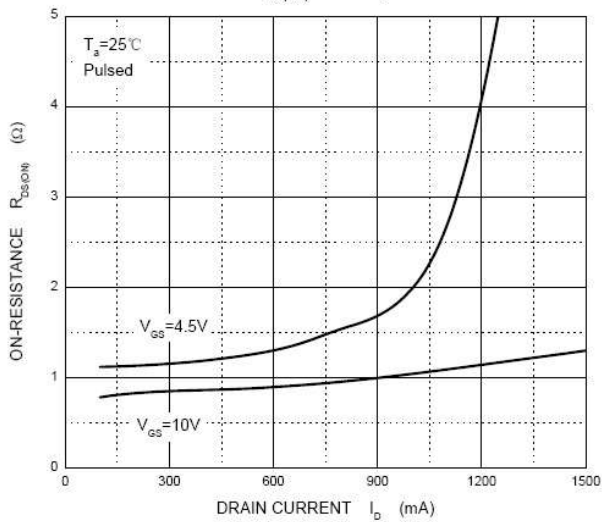
Output Characteristics



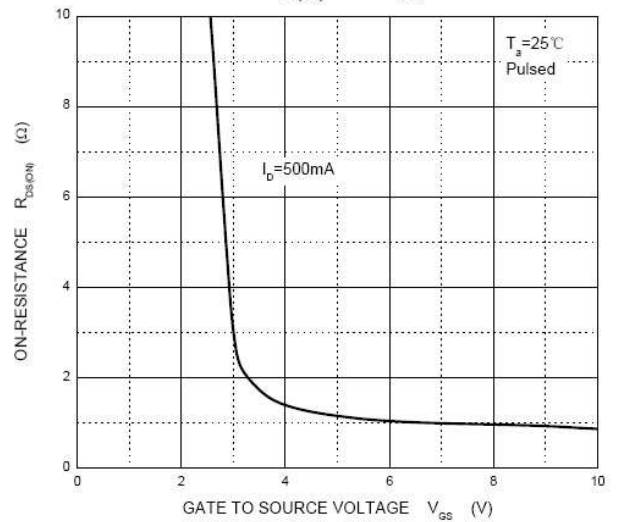
Transfer Characteristics



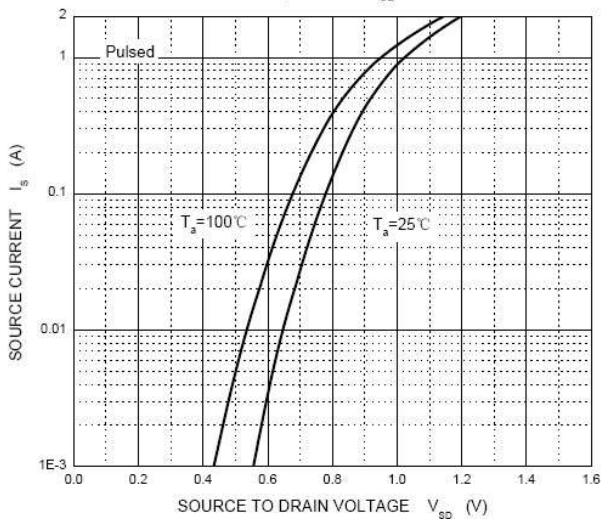
$R_{DS(ON)}$ — I_D



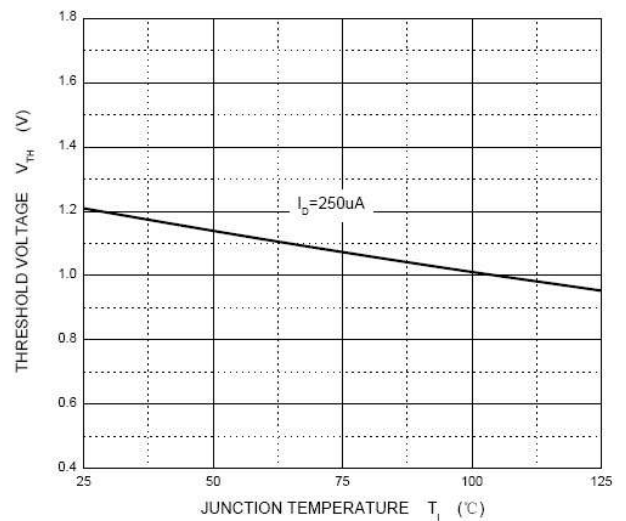
$R_{DS(ON)}$ — V_{GS}



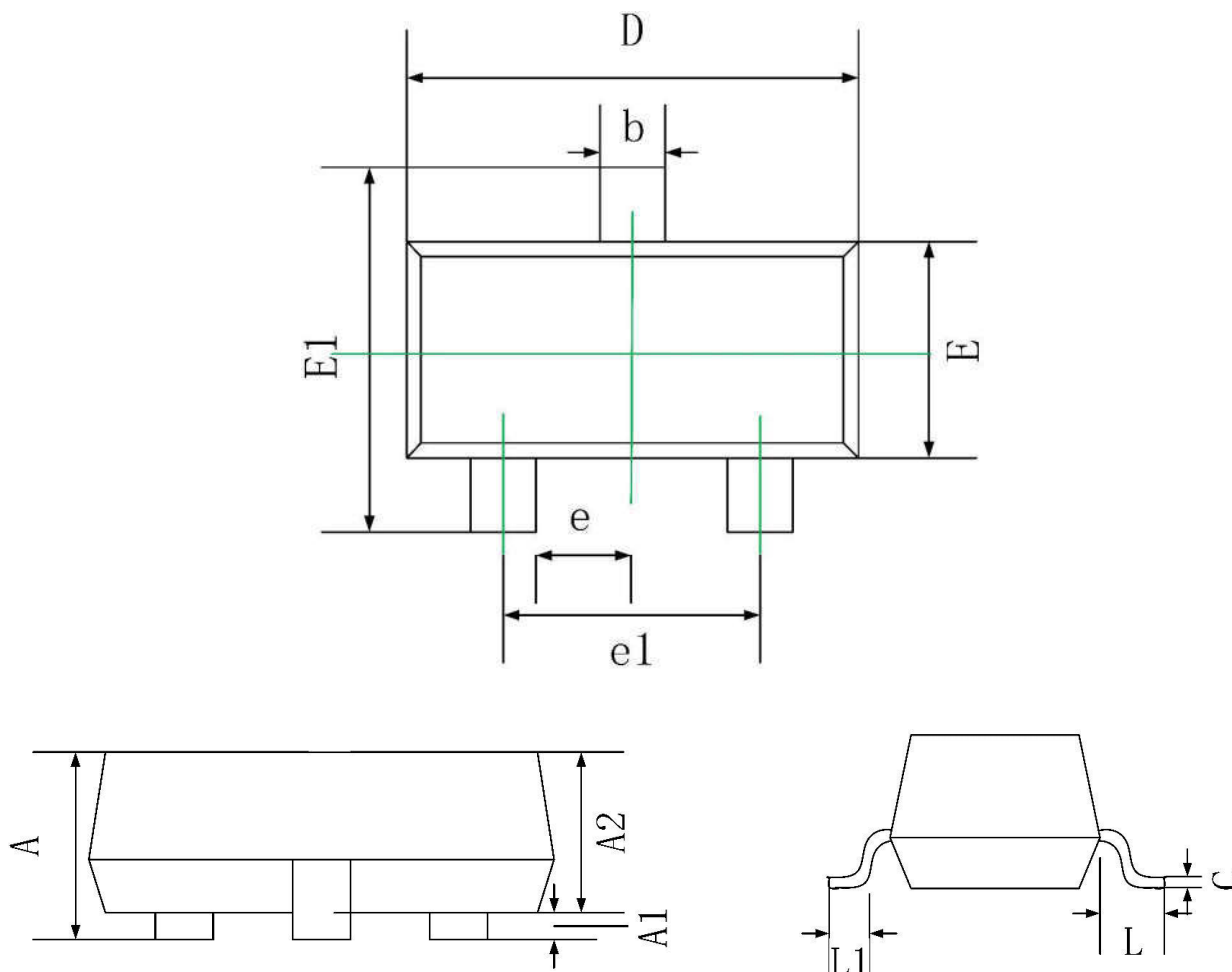
I_S — V_{SD}



Threshold Voltage



SOT-23 Package Information



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