

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
50V	3.5Ω@10V	0.22A
	6Ω@4.5V	

Feature

- High density cell design for extremely low RDS(on)
- Rugged and Reliable

Application

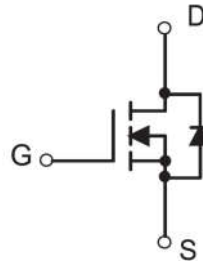
- Direct Logic-Level Interface: TTL/CMOS
- Drivers: Relays, Solenoids, Lamps, Hammers, Display, Memories, Transistors, etc.
- Battery Operated Systems
- Solid-State Relays

Package

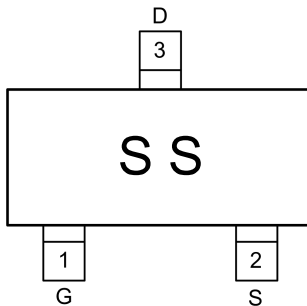


SOT-23

Circuit diagram



Marking



Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	50	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	0.22	A
Pulsed Drain Current	I _{DM}	0.88	A
Power Dissipation	P _D	0.35	W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C
Thermal Resistance From Junction to Ambient	R _{θJA}	357	°C/W

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

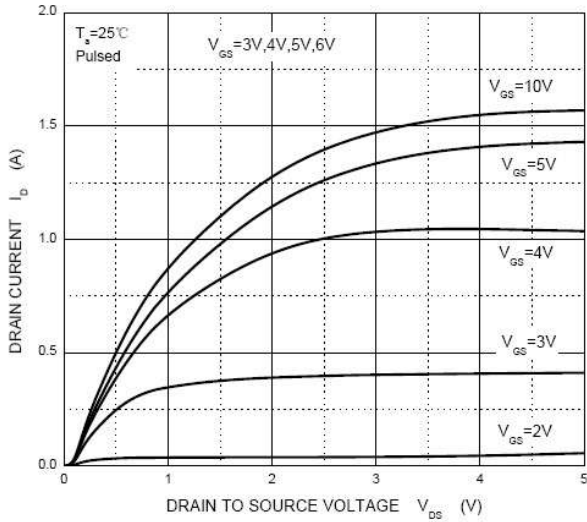
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	50			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 50V, V _{GS} = 0V			0.5	μA
		V _{DS} = 30V, V _{GS} = 0V			0.1	
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 1mA	0.8		1.5	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} = 10V, I _D = -0.22A			3.5	Ω
		V _{GS} = 4.5V, I _D = 0.22A			6	
Dynamic characteristics²⁾						
Input Capacitance	C _{iss}	V _{DS} = 25V, V _{GS} = 0V, f = 1MHz		27		pF
Output Capacitance	C _{oss}			13		
Reverse Transfer Capacitance	C _{rss}			6		
Turn-on delay time	t _{d(on)}	V _{DD} = 30V, V _{DS} = 10V, I _D = 0.29A, R _{GEN} = 6Ω		5		nS
Turn-on rise time	t _r			10		
Turn-off delay time	t _{d(off)}			36		
Turn-off fall time	t _f			14		
Source-Drain Diode characteristics						
Diode Forward voltage	V _{DS}	V _{GS} = 0V, I _S = 0.44A			1.4	V

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

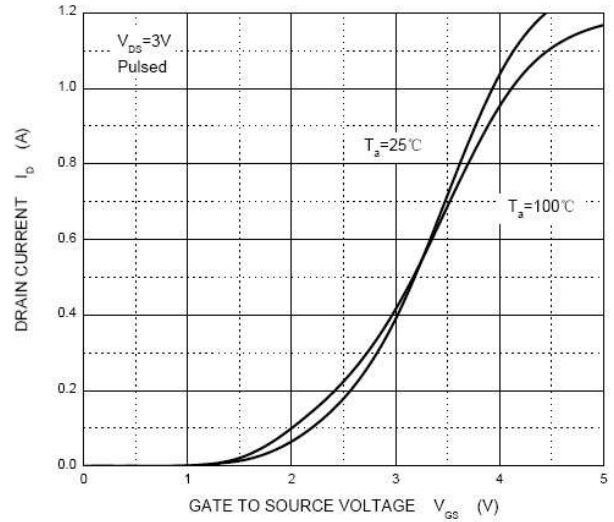
(2) Guaranteed by design, not subject to production testing.

Typical Characteristics

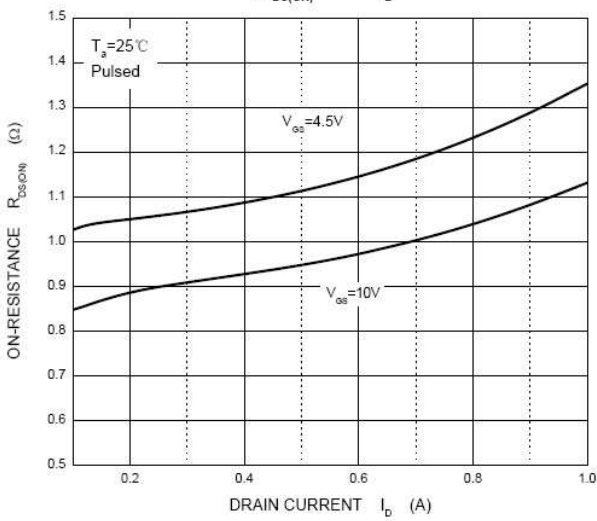
Output Characteristics



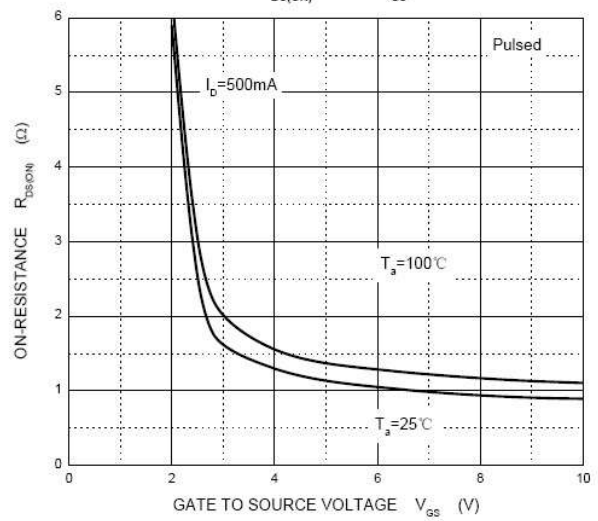
Transfer Characteristics



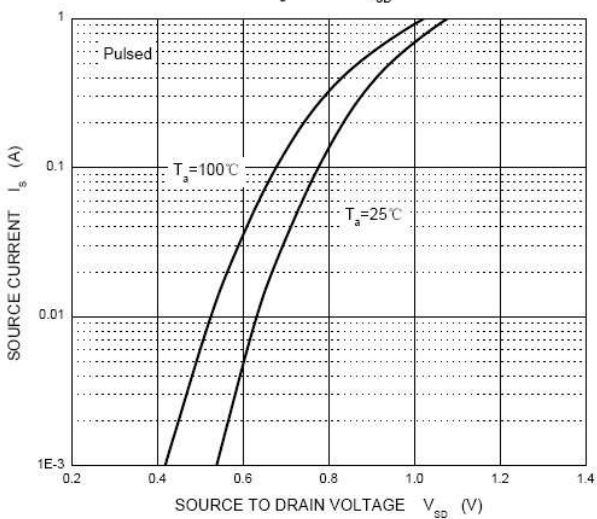
$R_{DS(ON)}$ — I_D



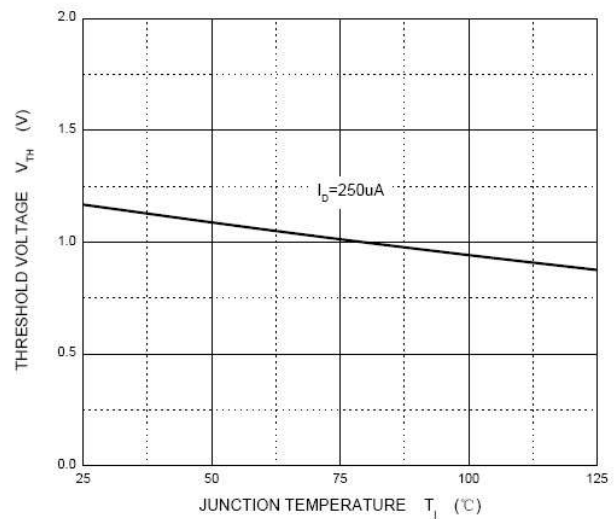
$R_{DS(ON)}$ — V_{GS}



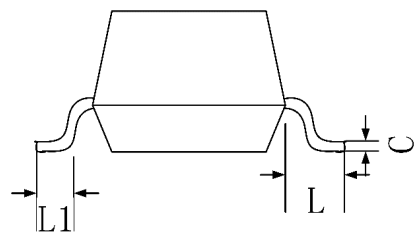
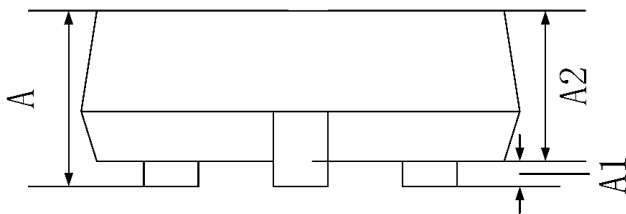
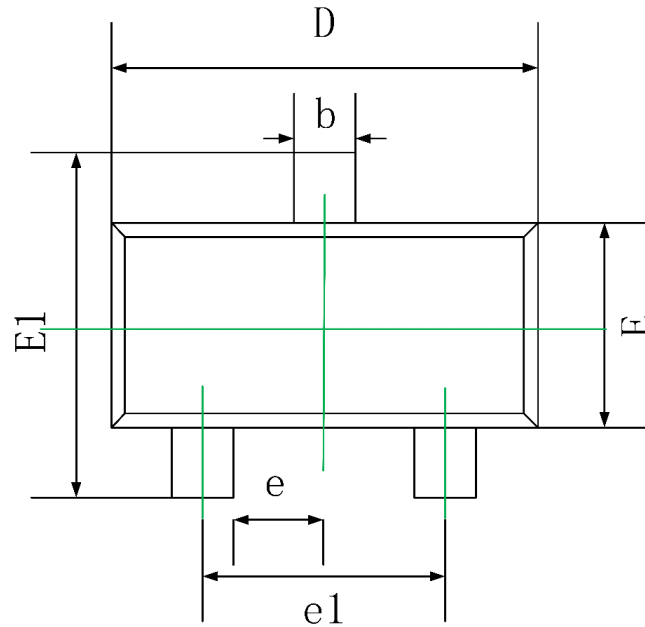
I_S — V_{SD}



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

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