

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	$2\Omega@10V$	0.22A
	$2.5\Omega@4.5V$	

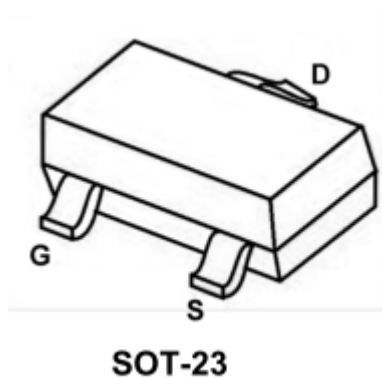
Feature

- We declare that the material of product compliance with RoHS requirements and Halogen Free
- Low threshold voltage,makes it ideal for low voltage applications
- ESD Protected

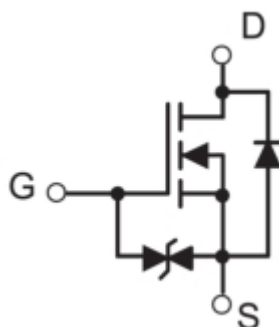
Application

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

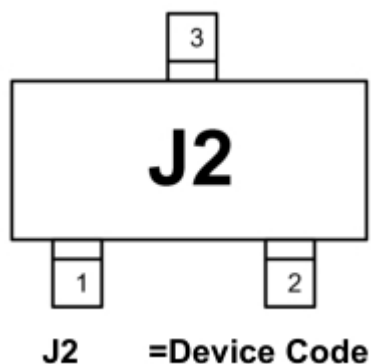
Package



Circuit diagram



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	0.22	A
Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	$^{\circ}\text{C}/\text{W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^{\circ}\text{C}$

Electrical characteristics

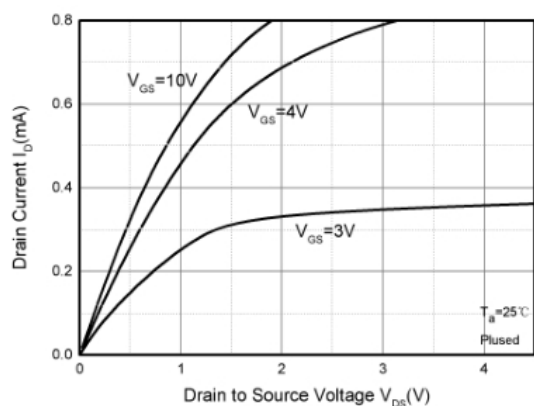
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 48V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 5	μA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.7	1	1.45	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 500mA$		2	5	Ω
		$V_{GS} = 4.5V, I_D = 200mA$		2.5	8	
Dynamic characteristics						
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		
Switching Characteristics						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 30V, I_D = 0.29A,$ $V_{GS} = 10V, R_G = 6\Omega$			5	ns
Rise time	t_r				18	
Turn-off delay time	$t_{d(off)}$				36	
Fall tim	t_f				14	
Source-Drain Diode Characteristics						
Diode Forward voltage	V_{SD}	$V_{GS} = 0V, I_S = 500mA$	0.5		1.4	V

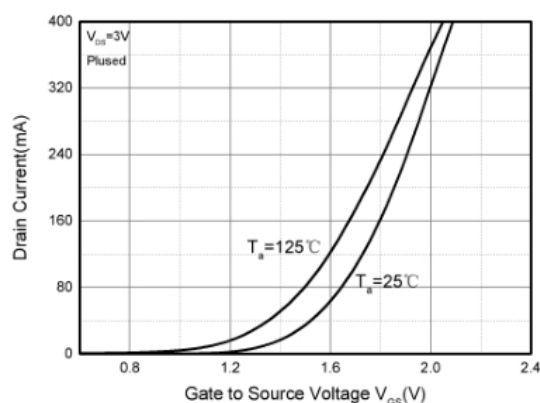
Notes:

- 1.Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
- 2.These parameters have no way to verify.

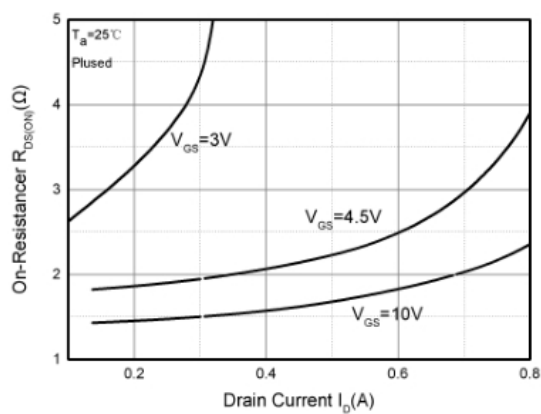
Typical Characteristics



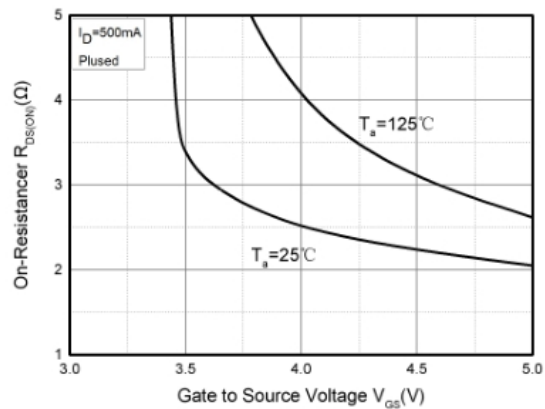
Output Characteristics



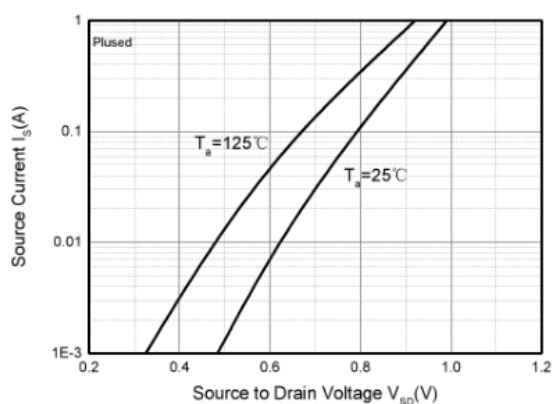
Transfer Characteristics



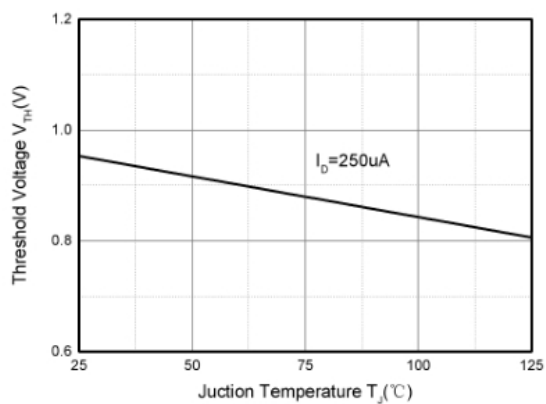
RDS(ON)—I_D



RDS(ON)—V_{GS}

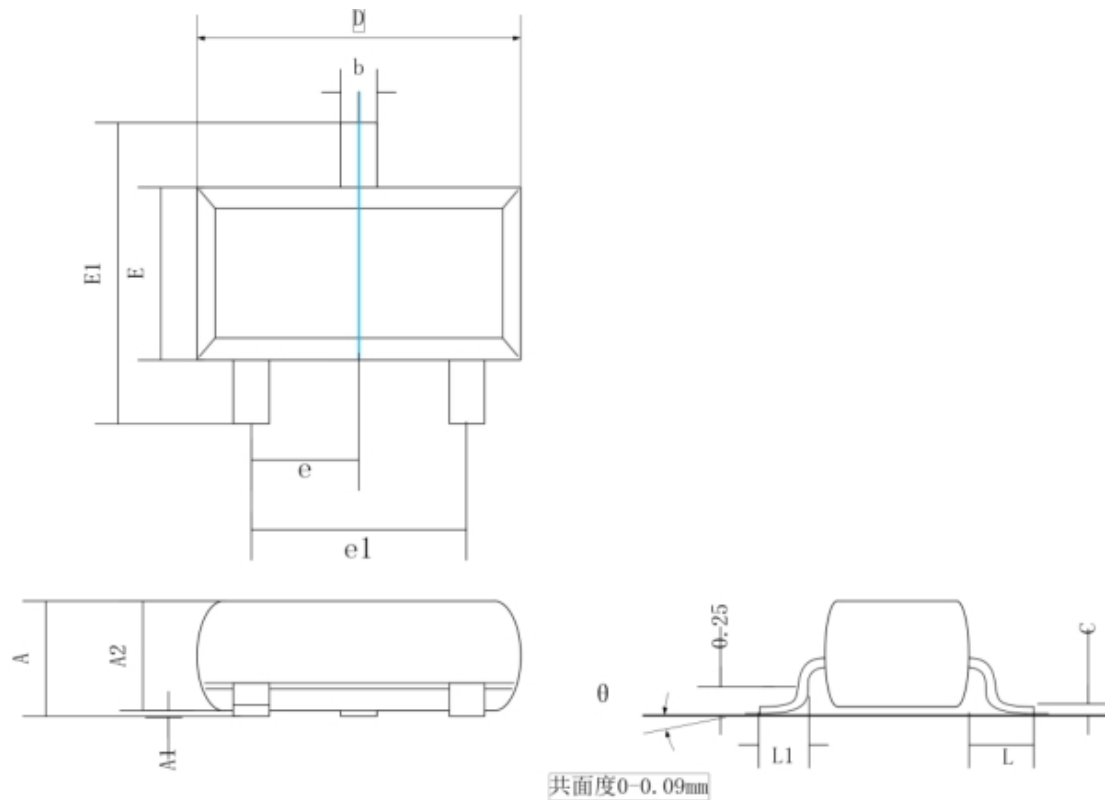


I_S—VSD



Threshold Voltage

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	3.00
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
θ	0°	8°