

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	13mΩ@4.5V	5.0A
	16mΩ@2.5V	

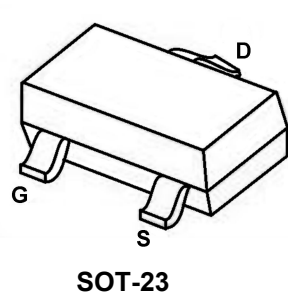
Feature

- High power and current handing capability
- Surface mount package

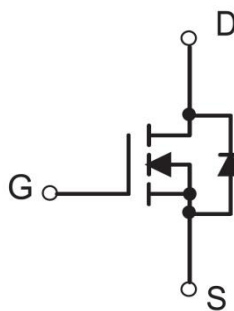
Application

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

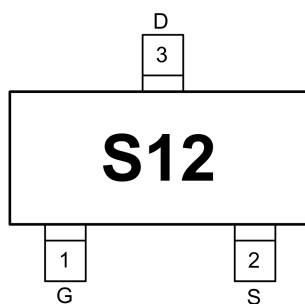
Package:



Circuit diagram



Marking



S12 =Device Code

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 10	V
Continuous Drain Current	I_D	5	A
Pulsed Drain Current (t=300μs)	I_{DM}	20	A
Power Dissipation	P_D	1.5	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	80	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55~ +150	°C

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

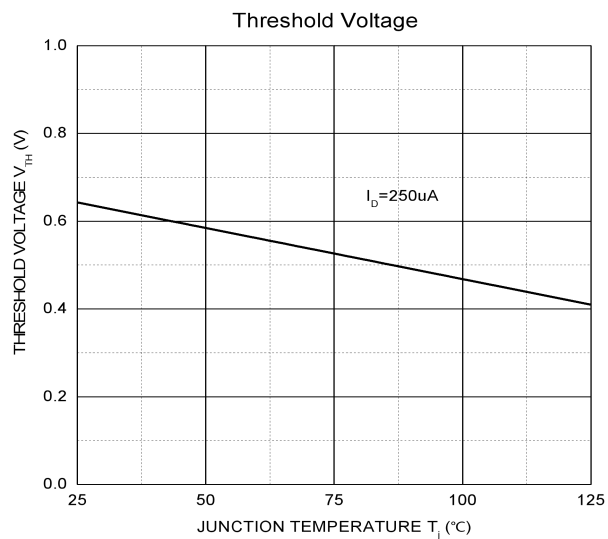
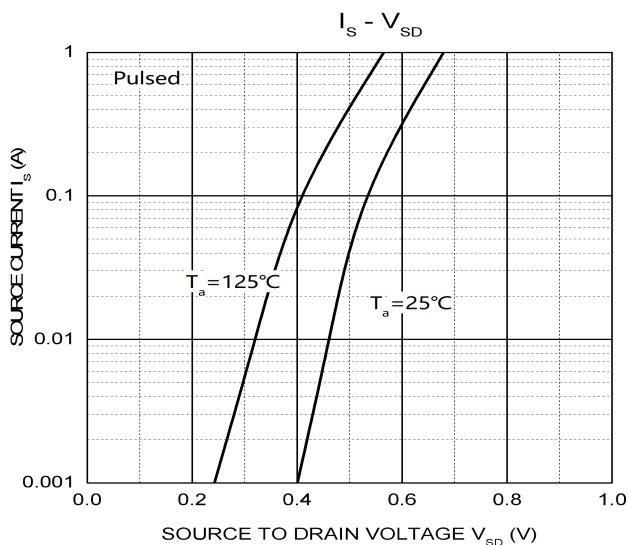
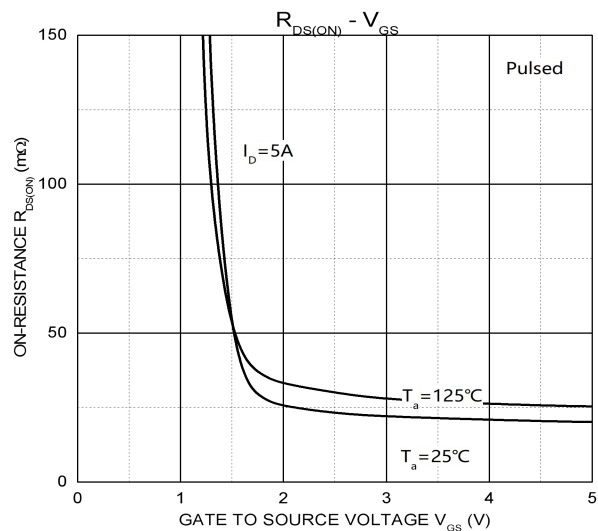
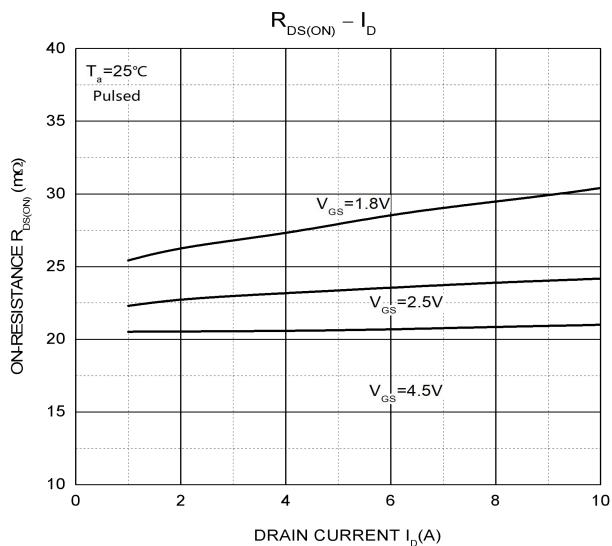
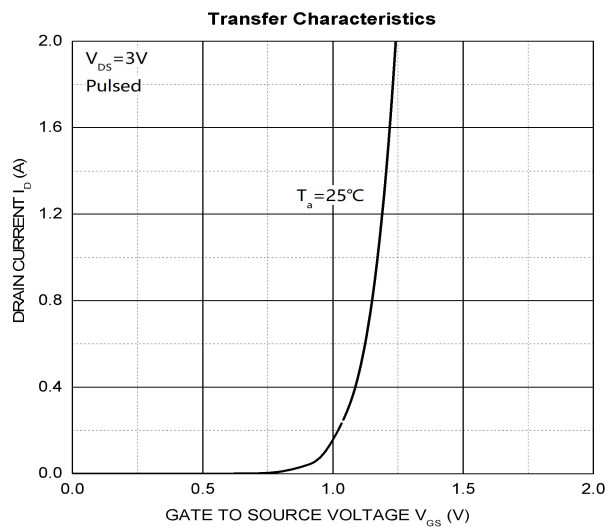
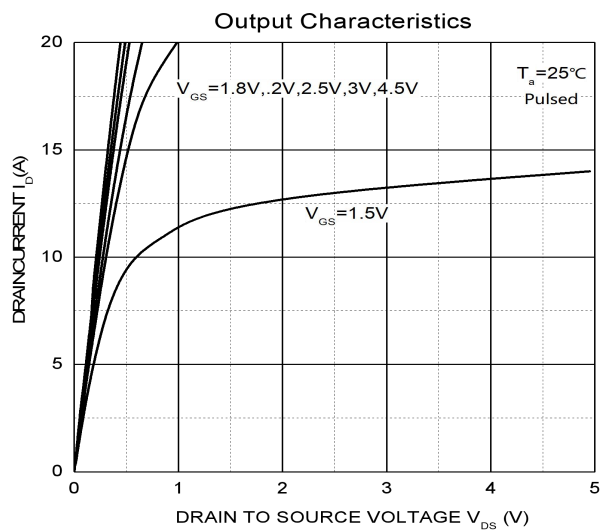
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	20	21.5		V
Zero gate voltage drain current	I _{DSS}	V _{DS} =20V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±10V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.5	0.65	0.9	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} =4.5V, I _D =5.0A		13	20	mΩ
		V _{GS} =2.5V, I _D =4.7A		16	30	
		V _{GS} =1.8V, I _D =4.3A			40	
Forward transconductance ¹⁾	g _{FS}	V _{DS} =10V, I _D =5A	6			S
Dynamic characteristics ²⁾						
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1MHz		865		pF
Output Capacitance	C _{oss}			105		
Reverse Transfer Capacitance	C _{rss}			55		
Gate resistance	R _g	f =1MHz	0.5		4.8	Ω
Switching Characteristics ²⁾						
Turn-on delay time	t _{d(on)}	V _{GEN} =5V, V _{DD} =10V, I _D =4A, R _G =1Ω, R _L =2.2Ω			10	ns
Turn-on rise time	t _r				20	
Turn-off delay time	t _{d(off)}				32	
Turn-off fall time	t _f				12	
Source-Drain Diode characteristics						
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =4A		0.75	1.2	V

Notes:

- 1) Pulse Test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 2) These parameters have no way to verify.

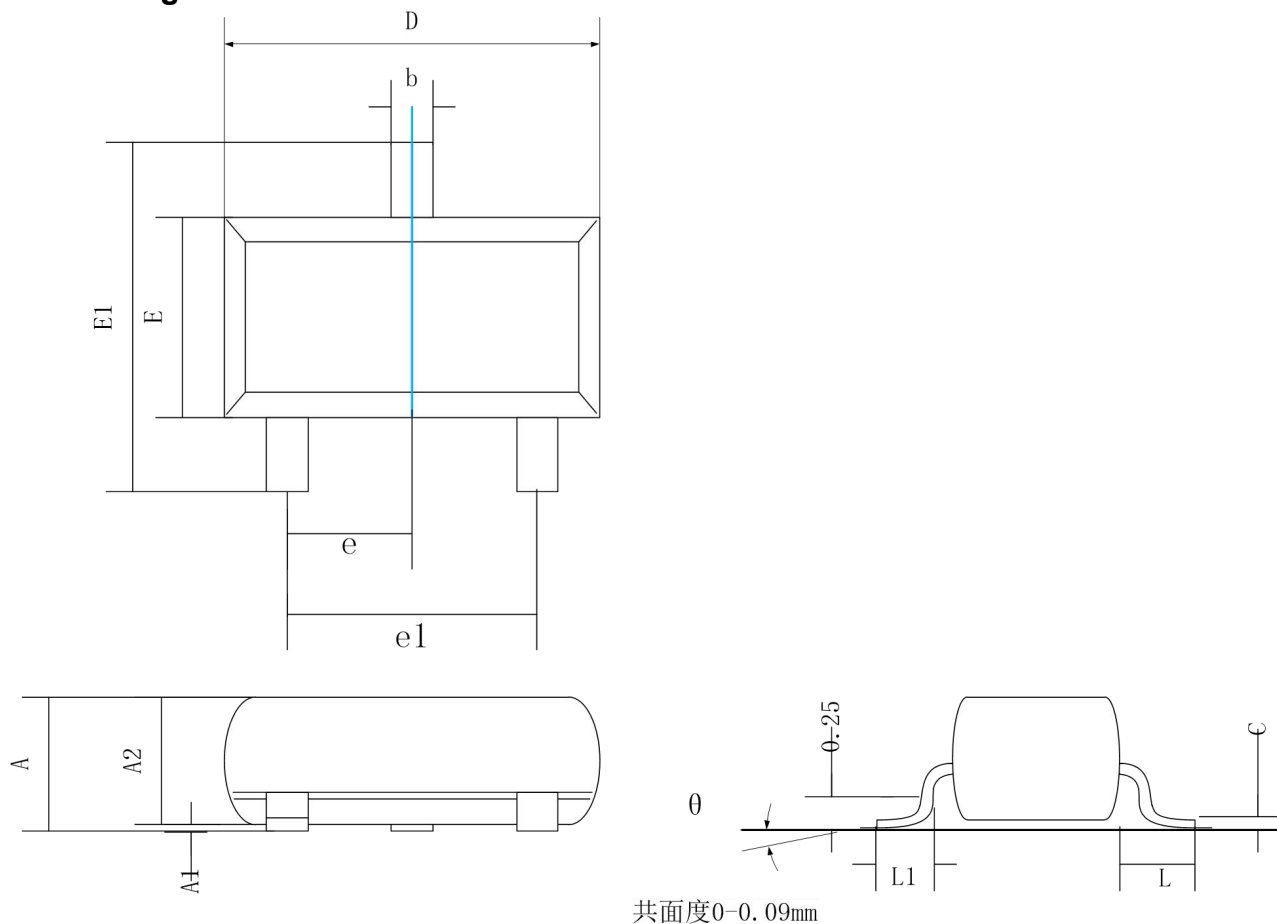


Typical Characteristics





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°