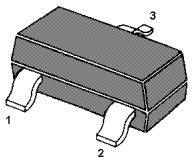
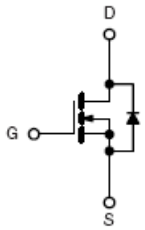
N-Channel 20-V(D-S) MOSFET

SOT-23

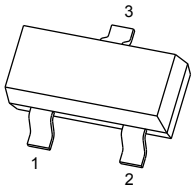


MARKING : S12

Equivalent Circuit



SOT-23



1. GATE
2. SOURCE
3. DRAIN

$V_{(BR)DSS}$	$R_{DS(on)}$Typ	I_D
20V	31mΩ@4.5V	5A
	35mΩ@2.5V	

Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±10	
Continuous Drain Current	t=5s	I_D	5	A
Pulsed Drain Current		I_{DM}	20	
Continuous Source-Drain Diode Current		I_S	1.04	
Maximum Power Dissipation	t=5s	P_D	0.35	W
Thermal Resistance from Junction to Ambient		$R_{\theta JA}$	357	℃/W
Operation Junction and Storage Temperature Range		T_J,T_{stg}	-50 ~+150	℃

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-source breakdown voltage	$V_{(BR)\ DSS}$	V_{GS} = 0V, I_D =250μA	20			V
Gate-source leakage	I_{GSS}	V_{DS} =0V, V_{GS} =±8V			±100	nA
Zero gate voltage drain current	I_{DSS}	V_{DS} =20V, V_{GS} =0V			1.0	μA
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.45	0.7	1.0	V
Drain-source on-state resistance[a]	$R_{DS\ (on)}$	V_{GS} =4.5V, I_D =5.0A		0.031	0.032	Ω
		V_{GS} =2.5V, I_D =4A		0.035	0.042	
Forward tranconductance[a]	g_{fS}	V_{DS} =10V, I_D =5.0A		6		S
Dynamic[b]						
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
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
Rise time	t_r				20	
Turn-off Delay time	$t_{d(off)}$				32	
Fall yime	t_f				12	
Drain-source body diode characteristics						
Forward diode voltage	V_{SD}	V_{GS} =0V,I_S=4A		0.75	1.2	V

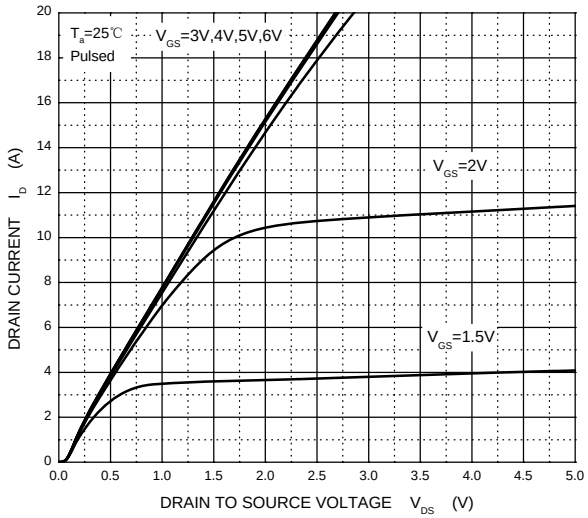
Notes :

a. Pulse Test : pulse width ≤300μs, duty cycle ≤2%.

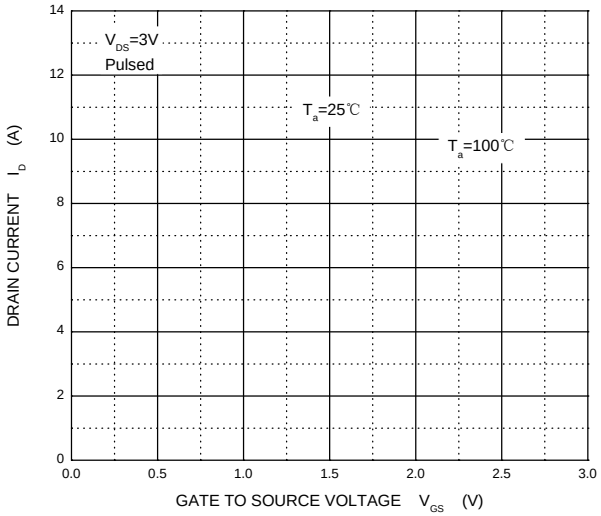
b. These parameters have no way to verify.

Typical Characteristics

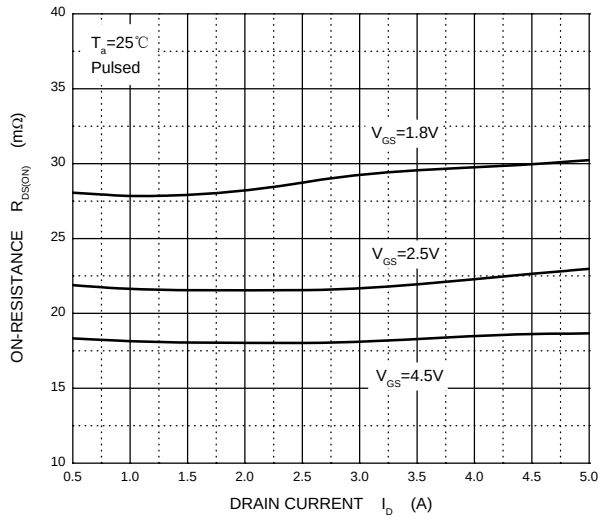
Output Characteristics



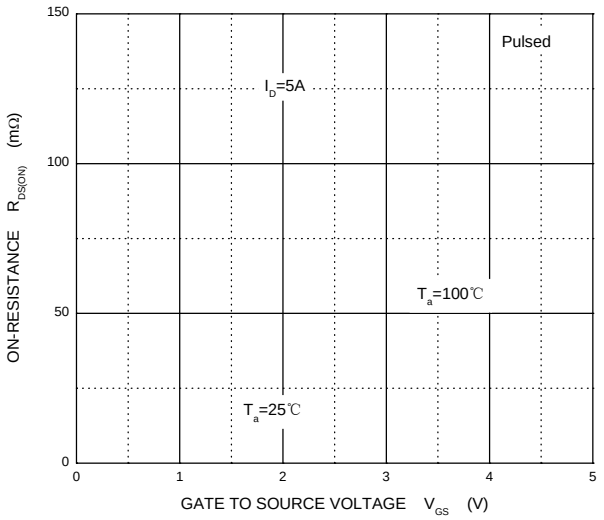
Transfer Characteristics



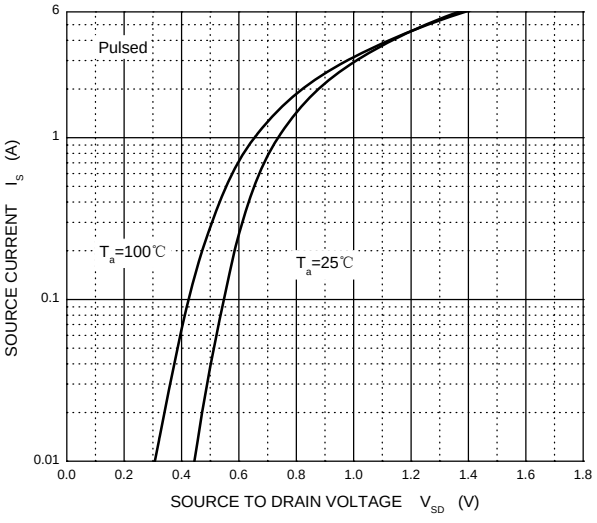
$R_{DS(ON)}$ —— I_D



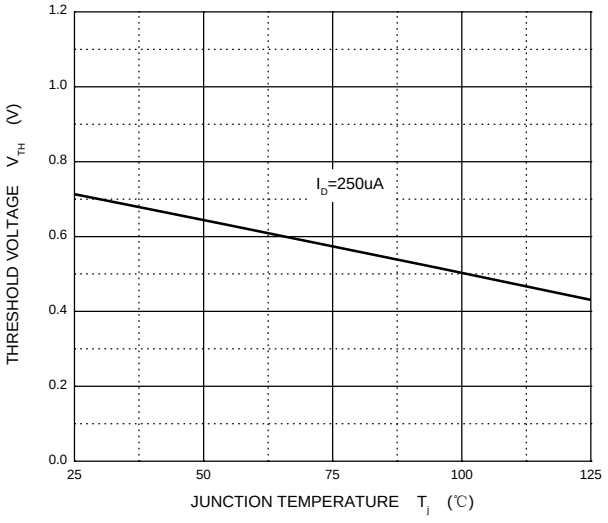
$R_{DS(ON)}$ —— V_{GS}



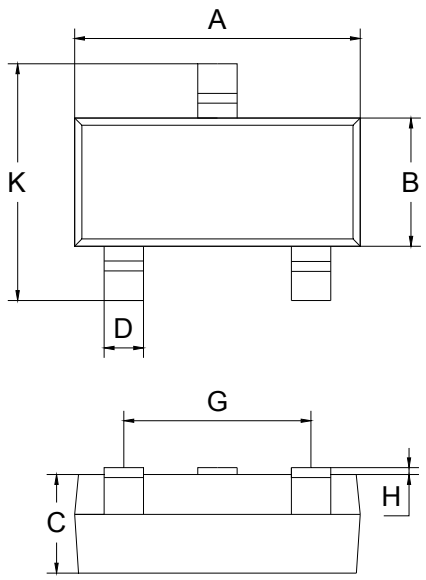
I_S —— V_{SD}



Threshold Voltage

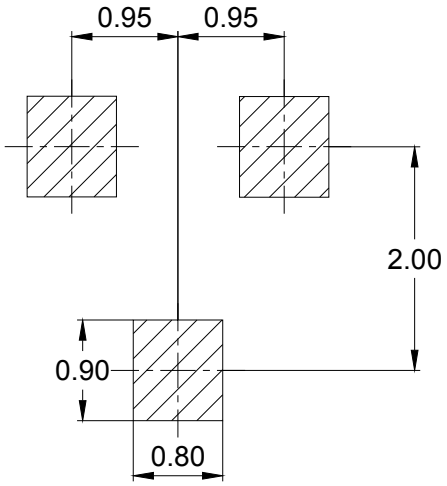


Plastic surface mounted package SOT-23



SOT-23		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	1.0 Typical	
D	0.4 Typical	
E	0.35	0.48
G	1.80	2.00
H	0.02	0.1
J	0.1 Typical	
K	2.20	2.60
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit : mm