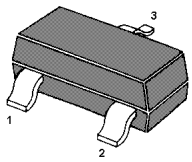
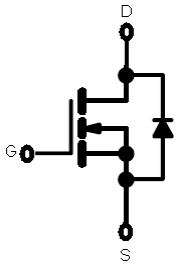
N-Channel MOSFET

SOT-23



MARKING : R0



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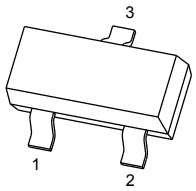


1. GATE
2. SOURCE
3. DRAIN

FEATURE

- High dense cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

APPLICATION

- Load/Power Switching
- Interfacing Switching

$V_{(BR)DSS}$	$R_{DS(on)}$Typ	I_D
30V	31mΩ@10V	5.8A
	35mΩ@4.5V	
	50mΩ@2.5V	

Maximum ratings (T_a=25℃ unless otherwise noted)

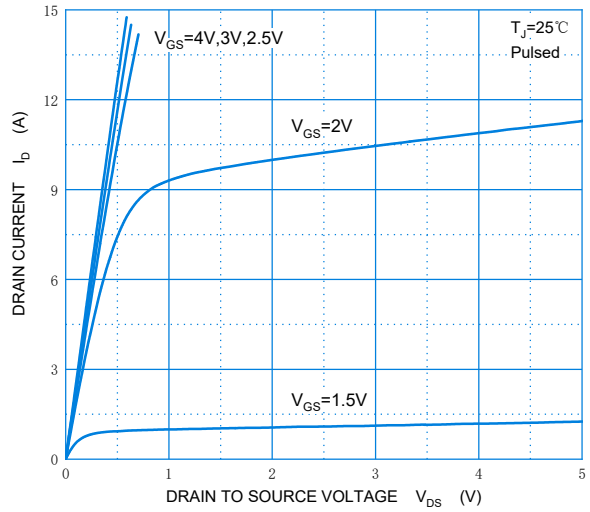
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	5.8	A
Drain Current-Pulsed ①	I_{DM}	22	A
Power Dissipation	P_D	1.4	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	130	℃/W
Operation Junction and Storage Temperature Range	T_J,T_{STG}	-55~+150	℃

T_a=25℃ unless otherwise specified

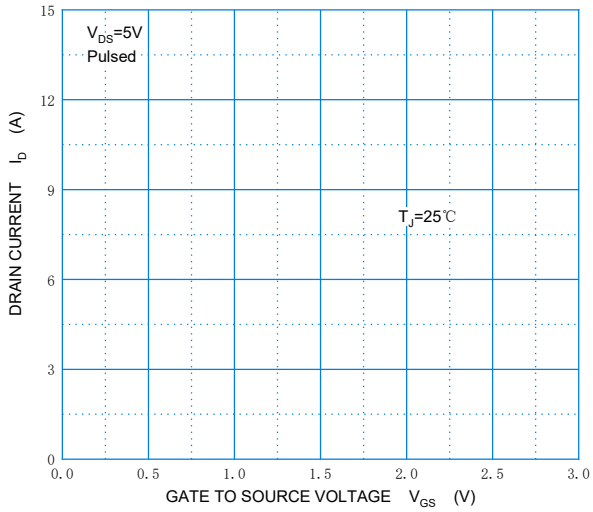
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-source breakdown voltage	$V_{(BR)\ DSS}$	V_{GS} = 0V, I_D =250μA	30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =24V,V_{GS} = 0V,T_J=25℃			1	μA
		V_{DS} =24V,V_{GS} = 0V,T_J=125℃			1	mA
Gate-source leakage current	I_{GSS}	V_{GS} =±12V, V_{DS} = 0V			±100	nA
On characteristics						
Drain-source on-resistance ②	$R_{DS(on)}$	V_{GS} =10V, I_D =4A		31	40	mΩ
		V_{GS} =4.5V, I_D =3A		35	46	mΩ
		V_{GS} =2.5V, I_D=2A		50	70	mΩ
Forward transconductance	g_{FS}	V_{DS} =5V, I_D =5A	8			S
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.7	0.9	1.4	V
Dynamic Characteristics ③						
Input capacitance	C_{iss}	V_{DS} =15V,V_{GS} =0V,f =1MHz		820	1050	pF
Output capacitance	C_{oss}			99		pF
Reverse transfer capacitance	C_{rss}			77		pF
Gate resistance	R_g	V_{DS} =0V,V_{GS} =0V,f =1MHz		3.6		Ω
Switching Characteristics ③						
Turn-on delay time	$t_{d(on)}$	V_{GS}=10V,V_{DS}=15V, R_L=2.7Ω,R_{GEN}=3Ω		3.3	5	ns
Turn-on rise time	t_r			4.8	7	ns
Turn-off delay time	$t_{d(off)}$			26	40	ns
Turn-off fall time	t_f			4	6	ns
Total Gate Charge	Q_g	V_{DS}=10V,I_D=5A, V_{GS}=6V		9.5		nC
Gate-Source Charge	Q_{gs}			1.5		nC
Gate-Drain Charge	Q_{gd}			3		nC
Drain-source diode characteristics and maximum ratings						
Diode forward voltage ②	V_{SD}	I_S=1A,V_{GS}=0V			1	V
Continuous drain-source diode forward current	I_S				5.8	A
Pulsed drain-source diode forward current①	I_{SM}				22	A

Typical Characteristics

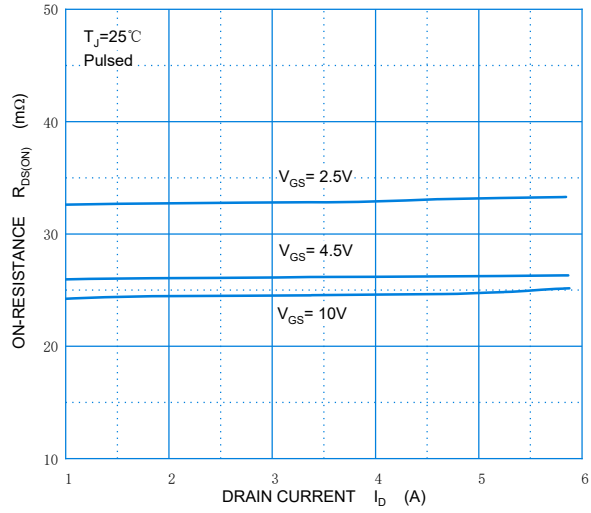
Output Characteristics



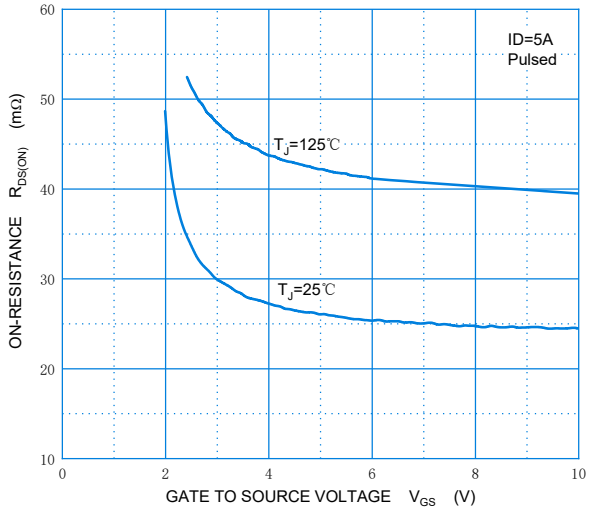
Transfer Characteristics



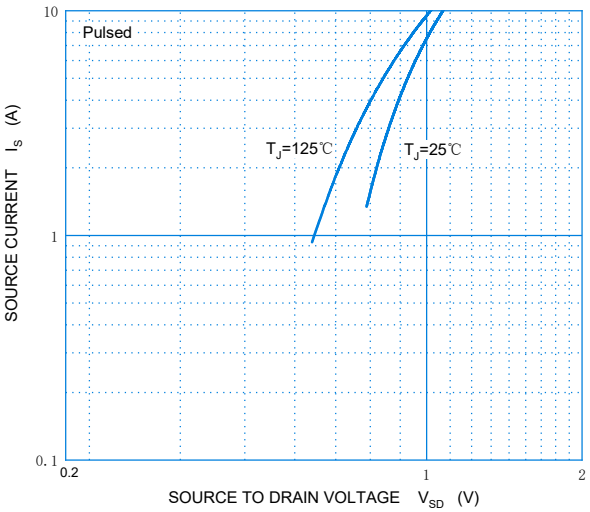
$R_{DS(ON)}$ —— I_D



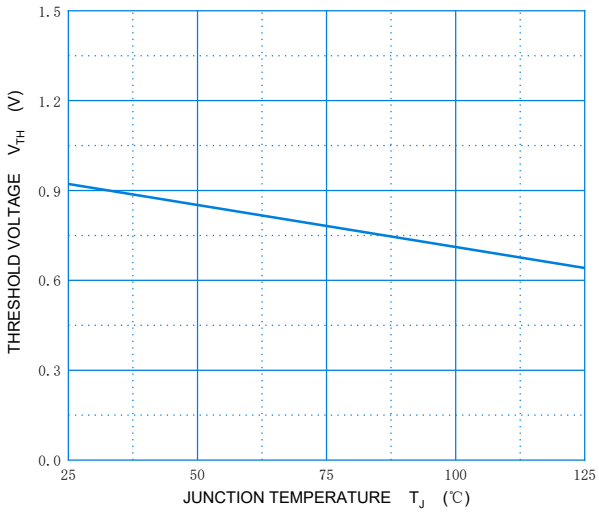
$R_{DS(ON)}$—— V_{GS}



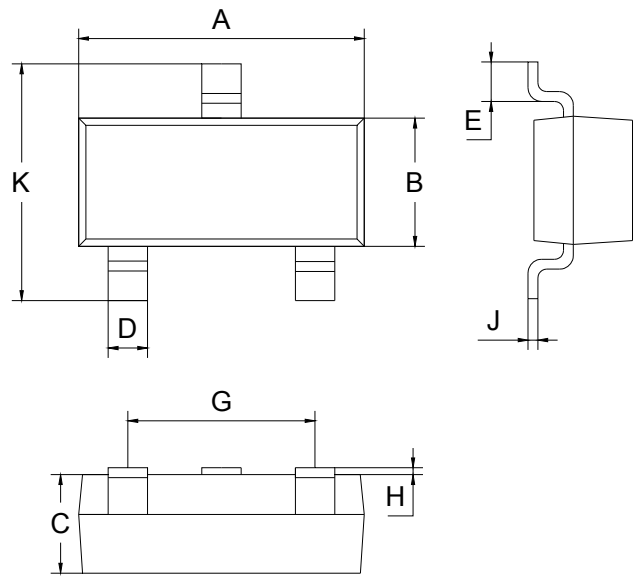
I_S —— V_{SD}



Threshold Voltage

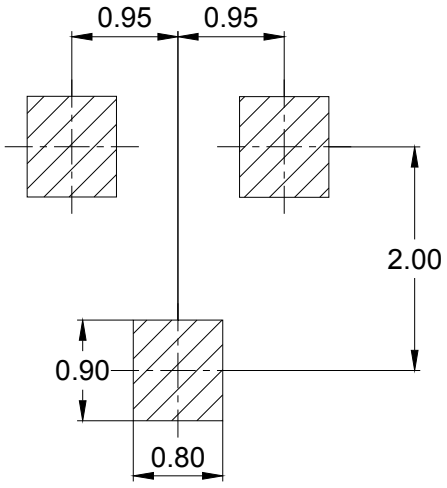


Plastic surface mounted package SOT-23



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