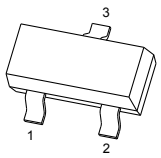
SOT-23 Plastic-Encapsulate MOSFETS

2SK3018

2SK3018 N-Channel 30-V(D-S) MOSFET

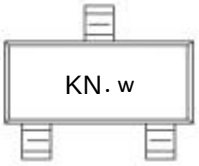
$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
30V	2.5Ω@4.5V	0.1A
	3.0Ω@2.5V	

SOT-23 SOT-323



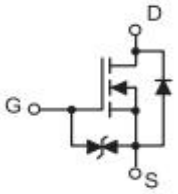
1.GATE
2.SOURCE
3.DRAIN

MARKING



*w： week code

Equivalent Circuit



●Features

1) Low on-resistance.
2) Fast switching speed.
3) Low voltage drive (2.5V) makes this device ideal for portable equipment.
4) Drive circuits can be simple.
5) Parallel use is easy.
6) ESD protected 2KV HBM

●Applications

Interfacing, switching (30V, 100mA)

Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Drain-source voltage		V_{DSS}	30	V
Gate-source voltage		V_{GSS}	±20	V
Drain current	Continuous	I_D	±100	mA
	Pulsed	I_{DP}*1	±400	mA
Total power dissipation		P_D*2	200	mW
Channel temperature		Tch	150	°C
Storage temperature		Tstg	–55 to +150	°C

*1 Pw≤10μs, Duty cycle≤1%
*2 With each pin mounted on the recommended lands.

Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to ambient	Rth(ch-a) *	625	°C / W

*With each pin mounted on the recommended lands.

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Electrical characteristics (Ta= 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	I_{GSS}	–	–	±100	ηA	V_{GS} = ±20V, V_{DS} = 0V
Drain-source breakdown voltage	$V_{(BR)DSS}$	30	–	–	V	I_D = 10μA, V_{GS} = 0V
Zero gate voltage drain current	I_{DSS}	–	–	1	μA	V_{DS} = 30V, V_{GS} = 0V
Gate threshold voltage	$V_{GS(th)}$	0.8	–	1.5	V	V_{DS} = 3V, I_D = 100μA
Static drain-source on-state resistance	$R_{DS(on)}$	–		8	Ω	I_D = 10mA, V_{GS} = 4V
	$R_{DS(on)}$	–		13	Ω	I_D = 1mA, V_{GS} = 2.5V
Forward transfer admittance	$\|Y_{fs}\|$	20	–	–	mS	V_{DS} = 3V, I_D = 10mA
Input capacitance	C_{iss}	–	13	–	pF	V_{DS} = 5V
Output capacitance	C_{oss}	–	9	–	pF	V_{GS} = 0V
Reverse transfer capacitance	C_{rss}	–	4	–	pF	f = 1MHz
Turn-on delay time	$t_{d(on)}$	–	15	–	ns	I_D = 10mA, V_{DD} = 5V
Rise time	t_r	–	35	–	ns	V_{GS} = 5V
Turn-off delay time	$t_{d(off)}$	–	80	–	ns	R_L = 500Ω
Fall time	t_f	–	80	–	ns	R_G = 10Ω

Electrical characteristic curves

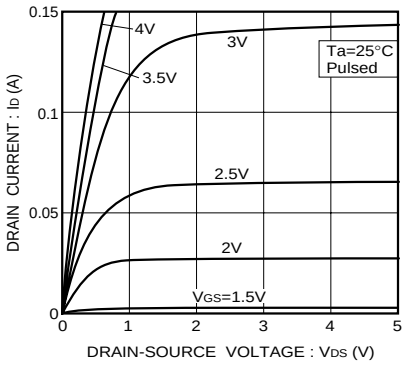

Fig.1 Typical output characteristics

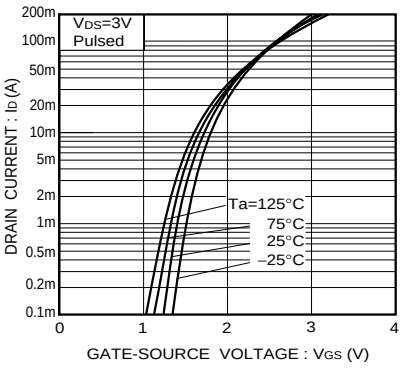

Fig.2 Typical transfer characteristics

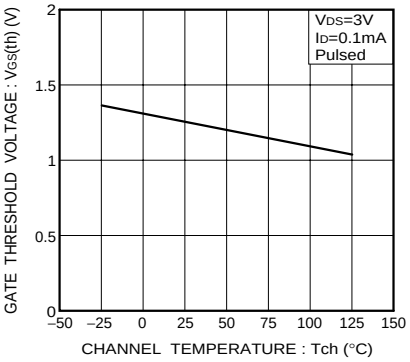

Fig.3 Gate threshold voltage vs. channel temperature

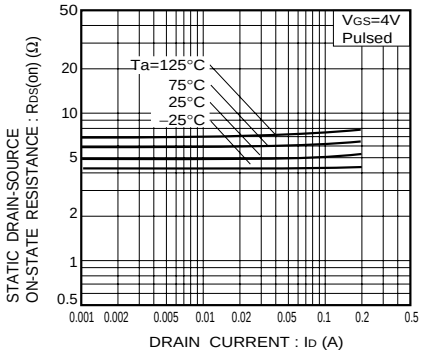

Fig.4 Static drain-source on-state resistance vs. drain current (I)

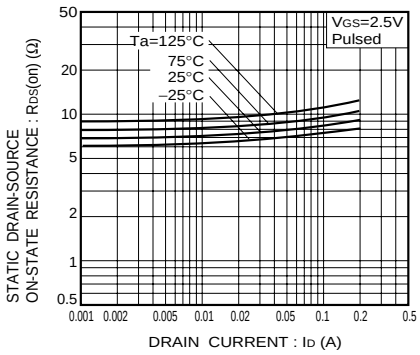

Fig.5 Static drain-source on-state resistance vs. drain current (II)

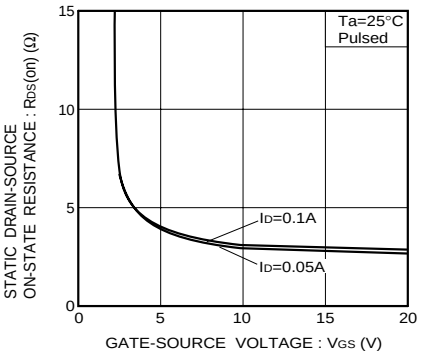

Fig.6 Static drain-source on-state resistance vs. gate-source voltage

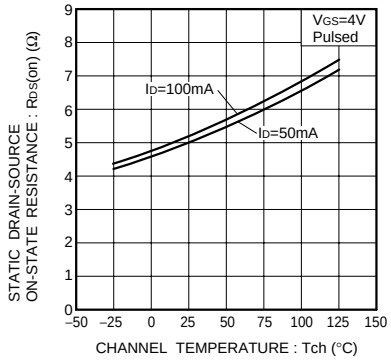

Fig.7 Static drain-source on-state resistance vs. channel temperature

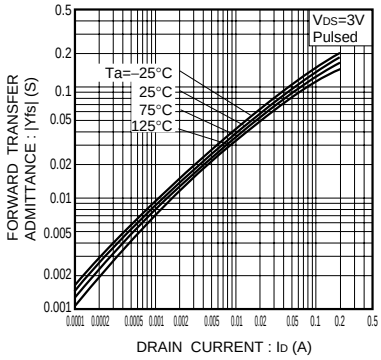

Fig.8 Forward transfer admittance vs. drain current

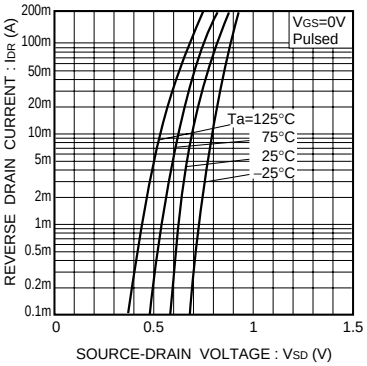

Fig.9 Reverse drain current vs. source-drain voltage (I)

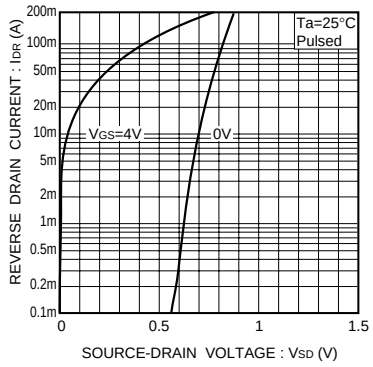

Fig.10 Reverse drain current vs. source-drain voltage (II)

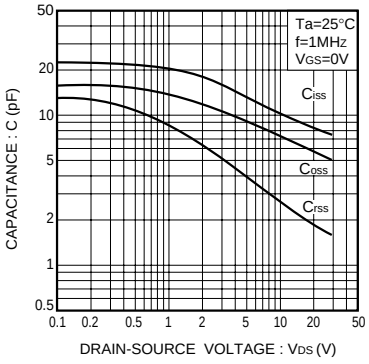

Fig.11 Typical capacitance vs. drain-source voltage

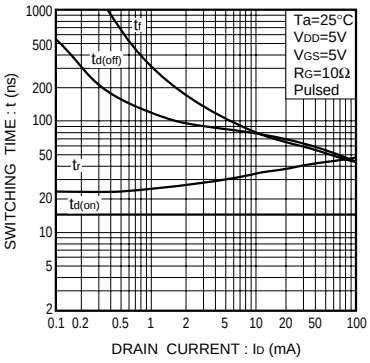

Fig.12 Switching characteristics (See Figures 13 and 14 for the measurement circuit and resultant waveforms)

●Switching characteristics measurement circuit

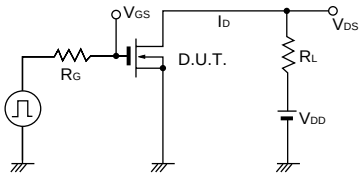

Fig.13 Switching time measurement circuit

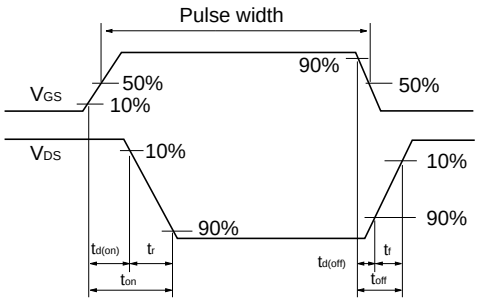

Fig.14 Switching time waveforms

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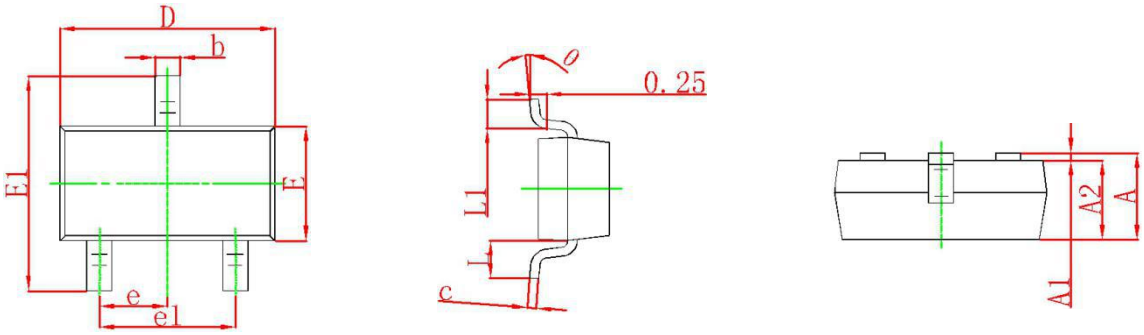
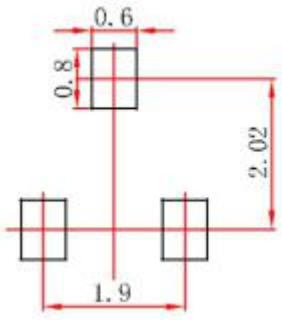
SOT-23 Package Outline Dimensions



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
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

SOT-23 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.