FMOS2SK3018W

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FMOS2SK3018W

0.1A, 30V N-Channel MOSFET

Features

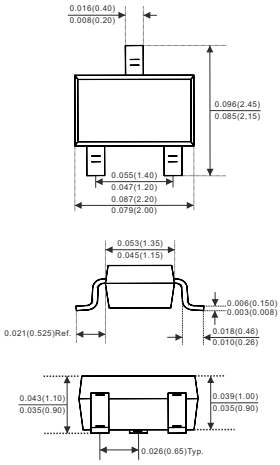
- V_{DS}=30V, I_D=0.1A.
- $R_{DS(ON)}$ < 8Ω @V_{GS} = 4.0V , I_D=10mA.
- $R_{DS(ON)}$ < 13Ω @V_{GS} = 2.5V, I_D=1mA.
- Low on-resistance.
- Fast switching speed.
- Low voltage drive makes this device ideal for portable equipment.
- Easily designed drive circuits.
- Easy to parallel.
- Lead-free parts for green partner, exceeds environmental standards of MIL-STD-19500 /228
- Suffix "-H" indicates Halogen-free part, ex.FMOS2SK3018W-H.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-323
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any
- Weight : Approximated 0.006 gram

Package outline

SOT-323



Dimensions in inches and (millimeters)

Maximum ratings (At T_A=25°C unless otherwise noted)

Parameter	Symbol	Ratings	Unit
Drain-source voltage	V_{DS}	30	V
Gate-source voltage	V_{GS}	±20	V
Continuous drain Current (T_C=25℃)	I_D	0.1	A
Drain current pulse (Note 1)	I_{DM}	3	A
Power dissipation (T_A=25℃)	P_D	0.2	W
Operating Junction temperature range	T_j	+150	℃
Storage temperature range	T_{STG}	-55 to +150	℃
Thermal resistance junction to ambient	$R_{\theta JA}$	625	℃/W

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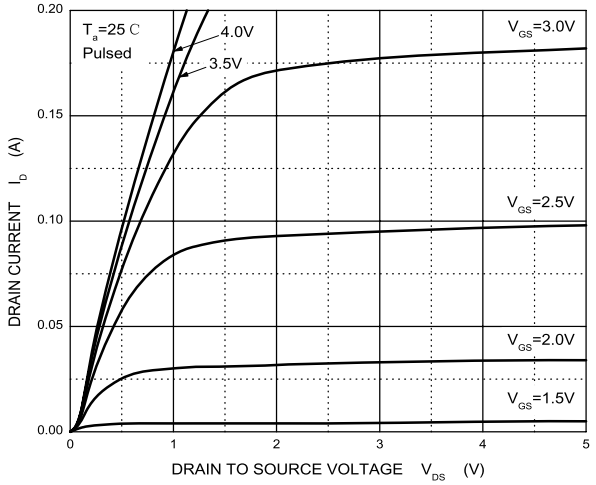
Electrical characteristics (At T_A=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Off characteristics						
Drain-source breakdown voltage	BV_{DSS}	I_D=10μA, V_{GS}=0V	30			V
Drain-source leakage current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			0.2	μA
Gate-source leakage current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V			±0.5	μA
On characteristics						
Gate threshold voltage	$V_{GS(TH)}$	V_{DS}=3V, I_D=100μA	0.8		1.5	V
Static drain-source on-resistance (Note 2)	$R_{DS(ON)}$	V_{GS}=4.0V, I_D=10mA			8	Ω
		V_{GS}=2.5V, I_D=1mA			13	Ω
Forward transconductance	g_{FS}	V_{GS}=3V, I_D=10mA	20			mS
Dynamic parameters						
Input capacitance	C_{iss}	V_{GS}=0V, V_{DS}=5V, f=1.0MHz		13		pF
Out capacitance	C_{oss}			9		
Reverse transfer capacitance	C_{rss}			4		
Switching parameters						
Turn-on delay time	$t_{d(on)}$	V_{DS}=5V, V_{GS}=5V, R_g=10Ω, I_D=10mA R_L=500Ω		15		ns
Rise time	t_r			35		
Turn-off delay time	$t_{d(off)}$			80		
Fall time	t_f			80		
Drain-source diode characteristics and maximum ratings						
Drain-source diode forward voltage	V_{SD}	V_{GS}=0V, I_S=0.5A		0.7	1.3	V
Continuous source current	I_S	V_{GS}=V_{DS}=0V, Force current			0.75	A
Pulsed source current	I_{SM}				3	

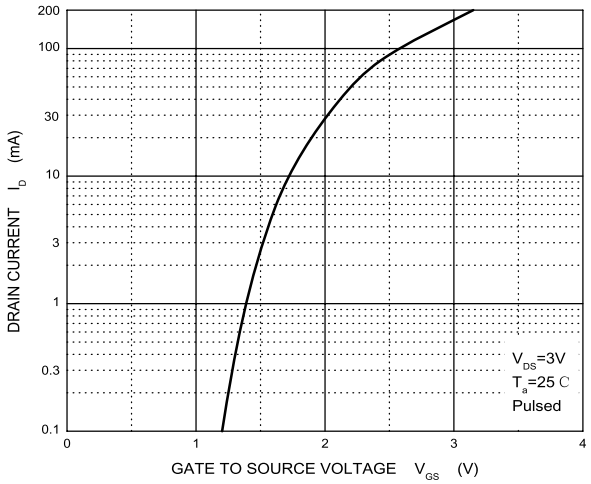
* These parameters have no way to verify.

Typical Performance Characteristics (FMOS2SK3018W)

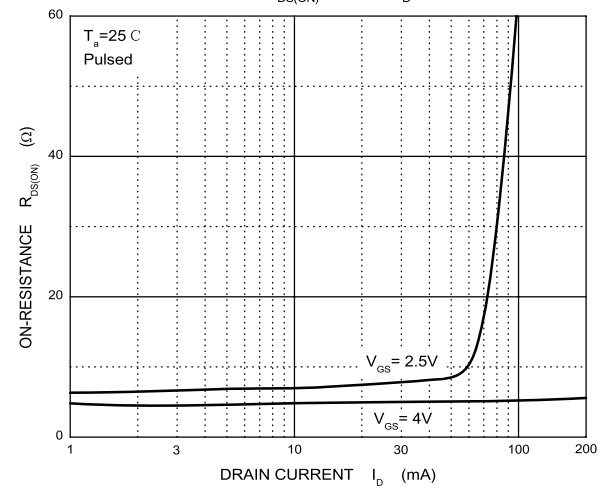
Output Characteristics



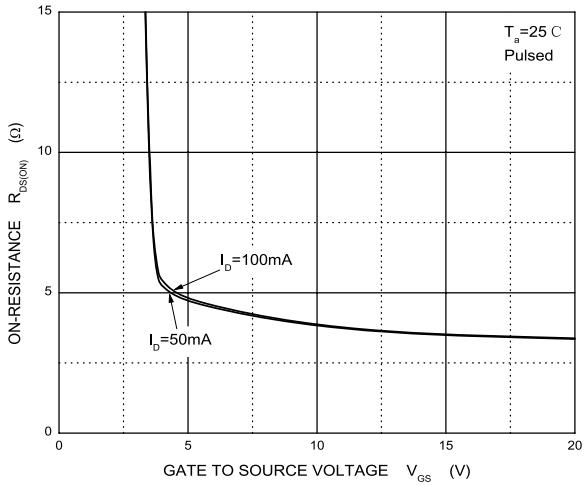
Transfer Characteristics



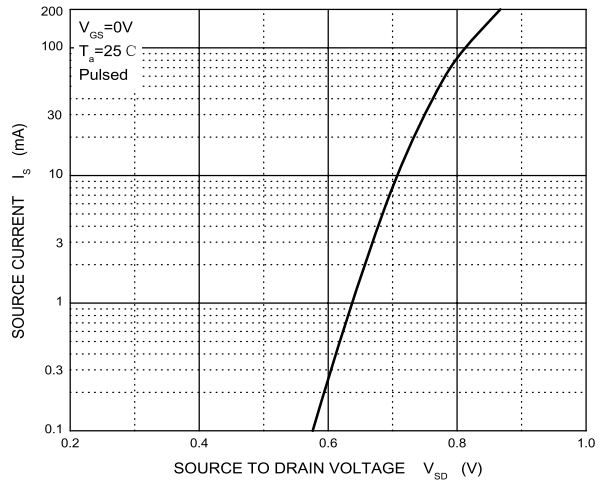
$R_{DS(ON)}$ —— I_D



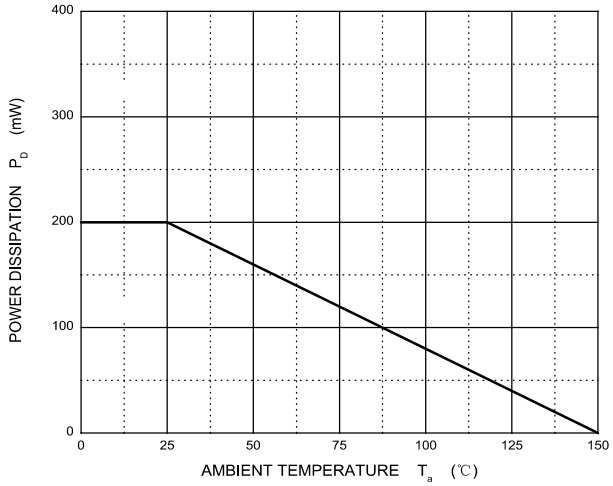
$R_{DS(ON)}$ —— V_{GS}



I_S —— V_{SD}

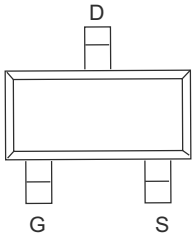
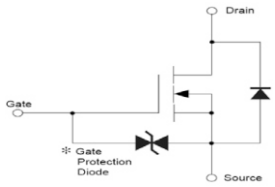


P_D —— T_a



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Pinning information

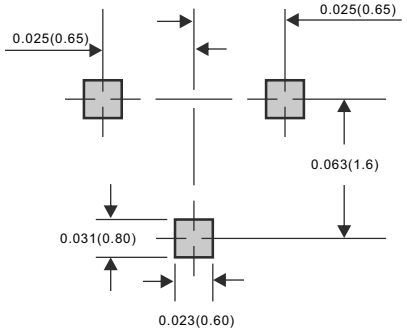
Pin	Simplified outline	Symbol
PinD Drain PinG Gate PinS Source		

Marking

Type number	Marking code
FMOS2SK3018W	KN

Suggested solder pad layout

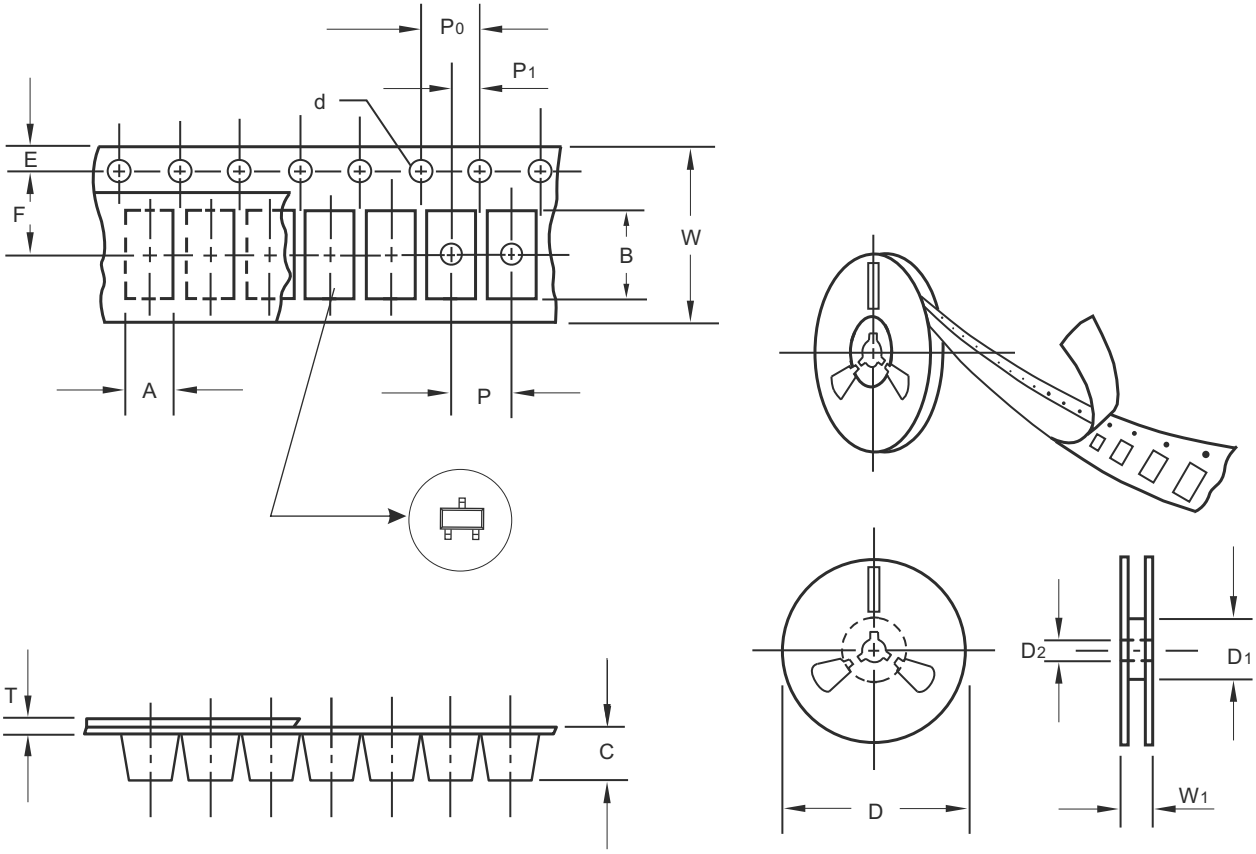
SOT-323



Dimensions in inches and (millimeters)

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Packing information



unit:mm

Item	Symbol	Tolerance	SOT-323
Carrier width	A	0.1	1.47
Carrier length	B	0.1	2.95
Carrier depth	C	0.1	1.15
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D_1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D_1	min	62.00
Feed hole diameter	D_2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P_0	0.1	4.00
Embossment center	P_1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W_1	1.0	11.40

Note:Devices are packed in accor dance with EIA standar RS-481-A and specifications listed above.

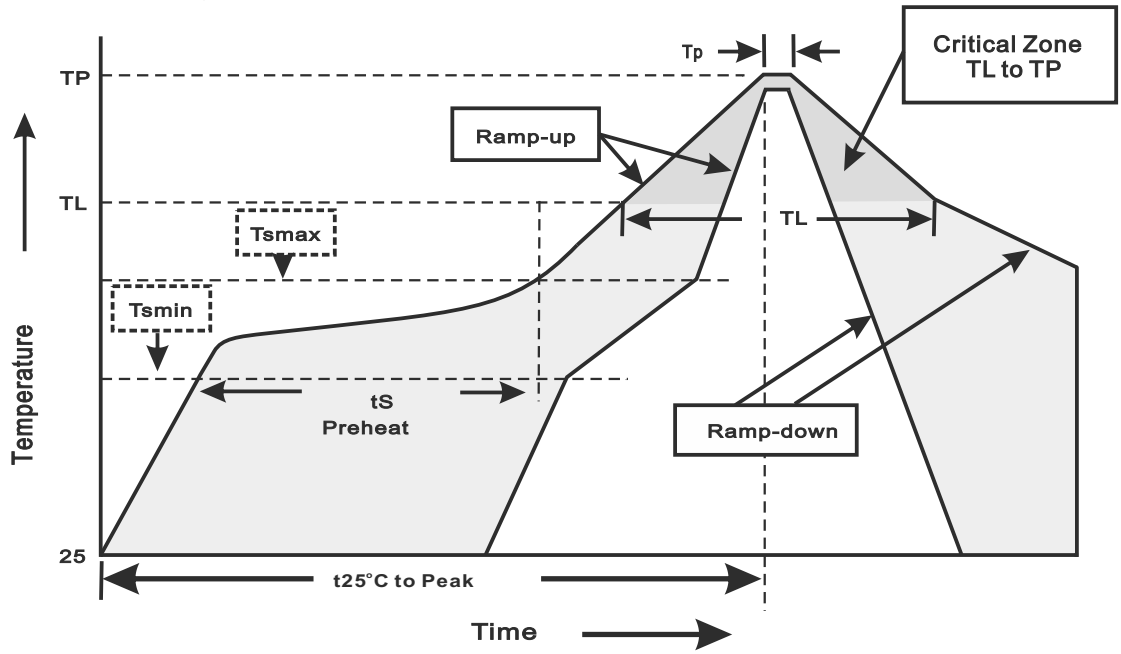
FMOS2SK3018W

Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SOT-323	7"	3,000	4.0	30,000	183*183*123	178	382*262*387	240,000	9.5

Suggested thermal profiles for soldering processes

1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T_L to T_P)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	 150°C 200°C 60~120sec
Tsmax to T_L -Ramp-upRate	 <3°C/sec
Time maintained above: -Temperature(T_L) -Time(t_L)	 217°C 60~260sec
Peak Temperature(T_P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t_P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes