

F2SK3019

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F2SK3019

30V N-Channel Enhancement Mode MOSFET

Features

- Low on-resistance
- Low voltage drive makes this device ideal for portable equipment
- Easily designed drive circuits
- Fast switching speed
- Easy to parallel
- Lead-free parts meet RoHS requirements
- Suffix "-H" indicates Halogen-free part, ex. F2SK3019-H

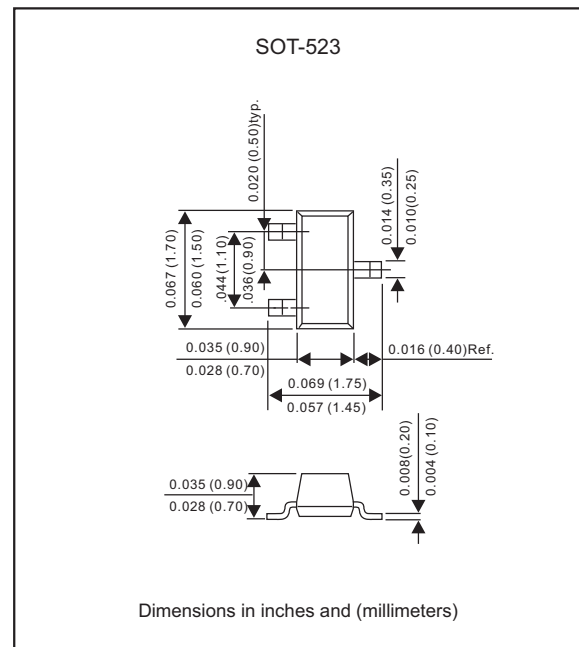
Application

- Interfacing , Switching

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-523
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any
- Weight : Approximated 0.003 gram

Package outline



Maximum ratings (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	30	V
Gate -source voltage	V_{GS}	± 20	V
Drain current -continuous	I_D	100	mA
Power dissipation	P_D	150	mW
Thermal resistance, junction-to-ambient	$R_{\theta JA}$	833	$^{\circ}\text{C}/\text{W}$
Operating junction temperature range	T_J	-55 to +150	$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

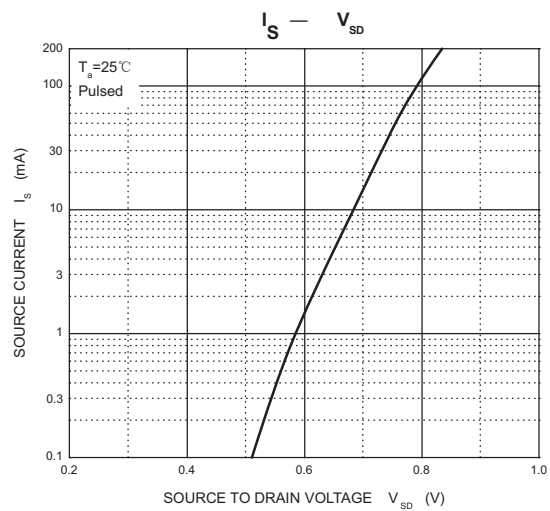
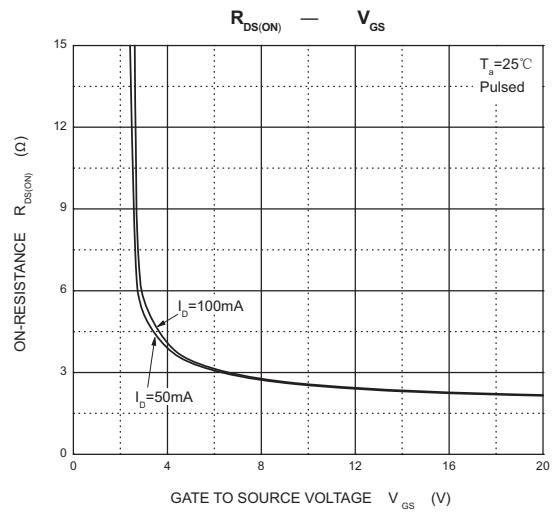
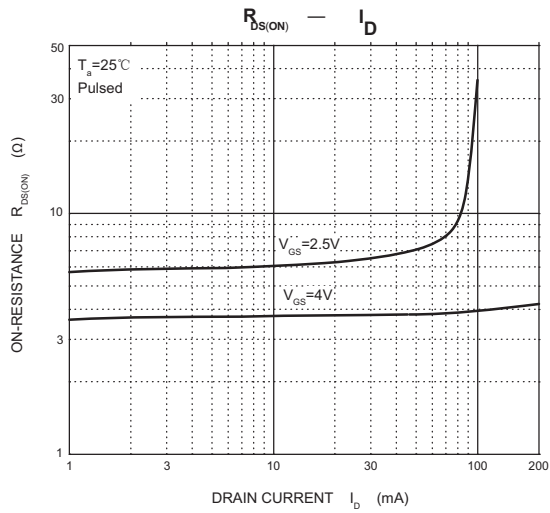
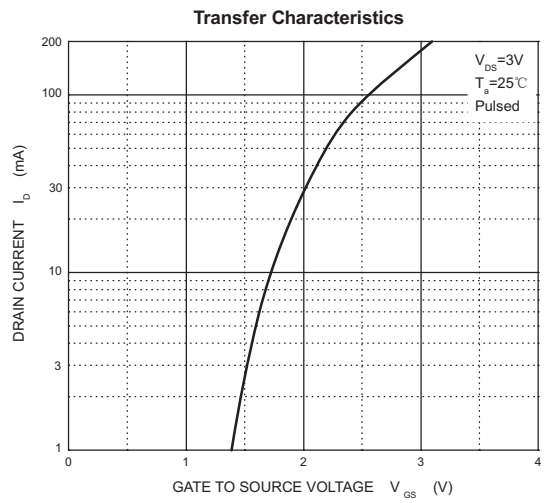
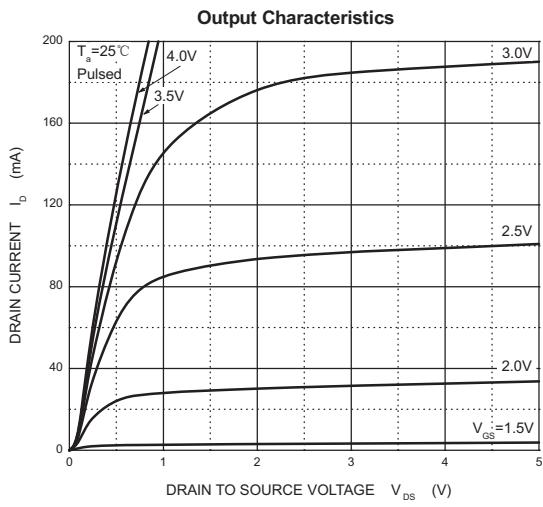
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Electrical characteristics (At $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Conditions	Symbol	MIN.	TYP.	MAX.	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{GS}=0V, I_D=10\mu A$	$V_{(BR)DSS}$	30			V
Gate threshold voltage	$V_{DS}=3V, I_D=100\mu A$	$V_{GS(th)}$	0.8		1.5	V
Gate –source leakage current	$V_{DS}=0V, V_{GS}=\pm 20V$	I_{GSS}			± 2	μA
Zero gate voltage drain current	$V_{DS}=30V, V_{GS}=0V$	I_{DSS}			1.0	μA
Drain-source on-resistance	$V_{GS}=4V, I_D=10mA$ $V_{GS}=2.5V, I_D=1mA$	$R_{DS(on)}$			8 13	Ω
Forward transconductance	$I_D=10mA, V_{DS}=3V$	g_{fs}	20			ms
Dynamic characteristics*						
Input capacitance	$V_{DS}=5V, V_{GS}=0V, f=1.0MHz$	C_{iss}		13		pF
Output capacitance		C_{oss}		9		
Reverse transfer capacitance		C_{rss}		4		
Switching characteristics*						
Turn-on delay time	$V_{DD}=5V, I_D=10mA$ $R_L=500\Omega, V_{GS}=5V,$ $R_G=10\Omega$	$t_{d(on)}$		15		ns
Rise time		t_r		35		
Turn-off delay time		$t_{d(off)}$		80		
Fall time		t_f		80		

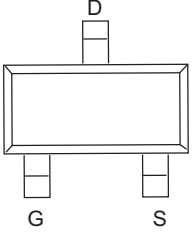
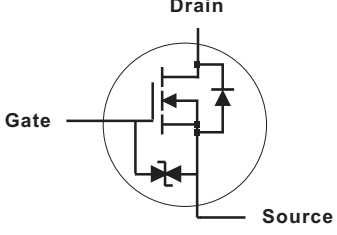
* These parameters have no way to verify.

Rating and characteristic curves (F2SK3019)



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Pinning information

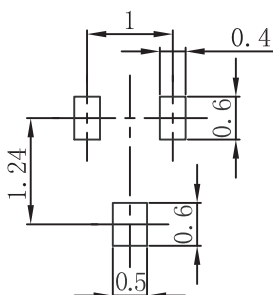
Pin	Simplified outline	Symbol
PinD Drain PinG Gate PinS Source		

Marking

Type number	Marking code
F2SK3019	KN

Suggested solder pad layout

SOT-523

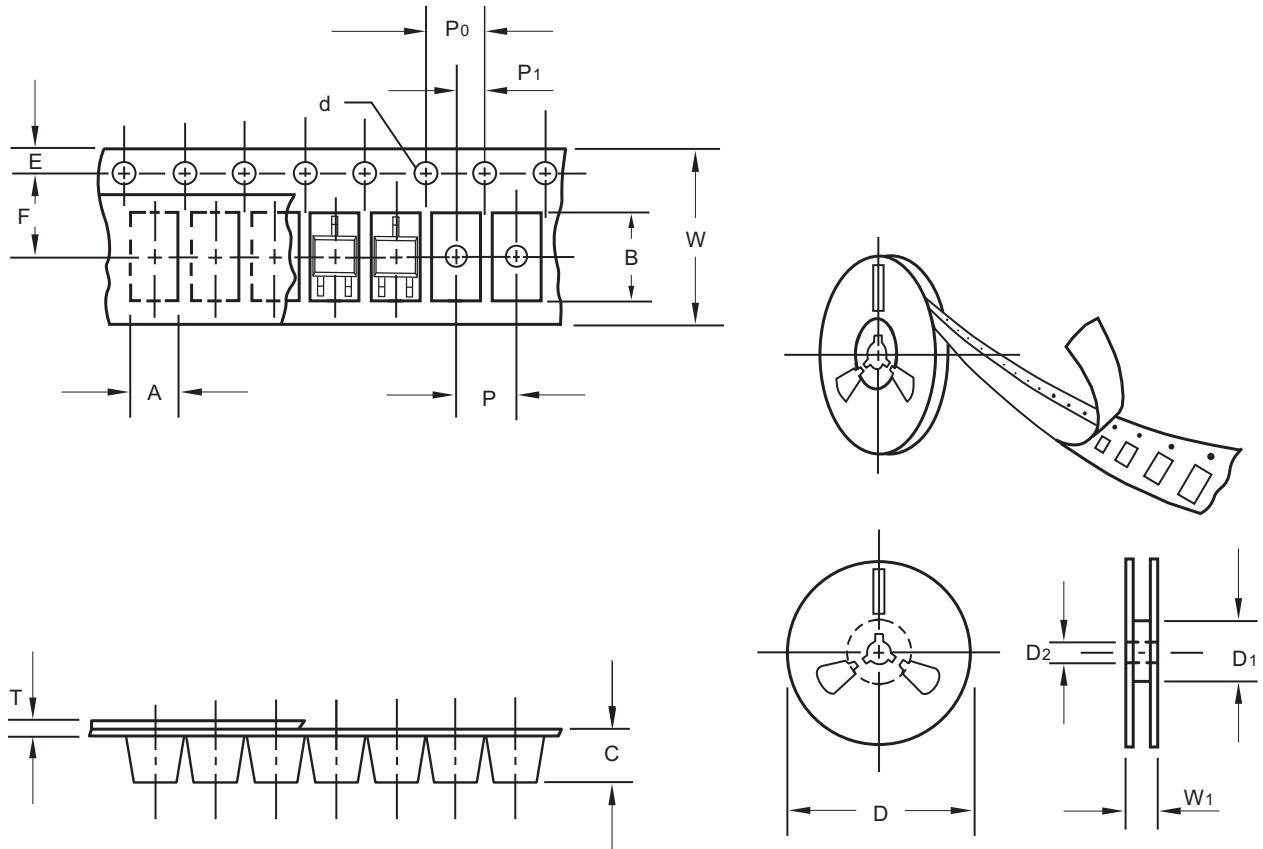


Note:

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

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Packing information



unit:mm

Item	Symbol	Tolerance	SOT-523
Carrier width	A	0.1	1.85
Carrier length	B	0.1	1.85
Carrier depth	C	0.1	0.875
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	min	54.40
Feed hole diameter	D2	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	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W1	1.0	12.30

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

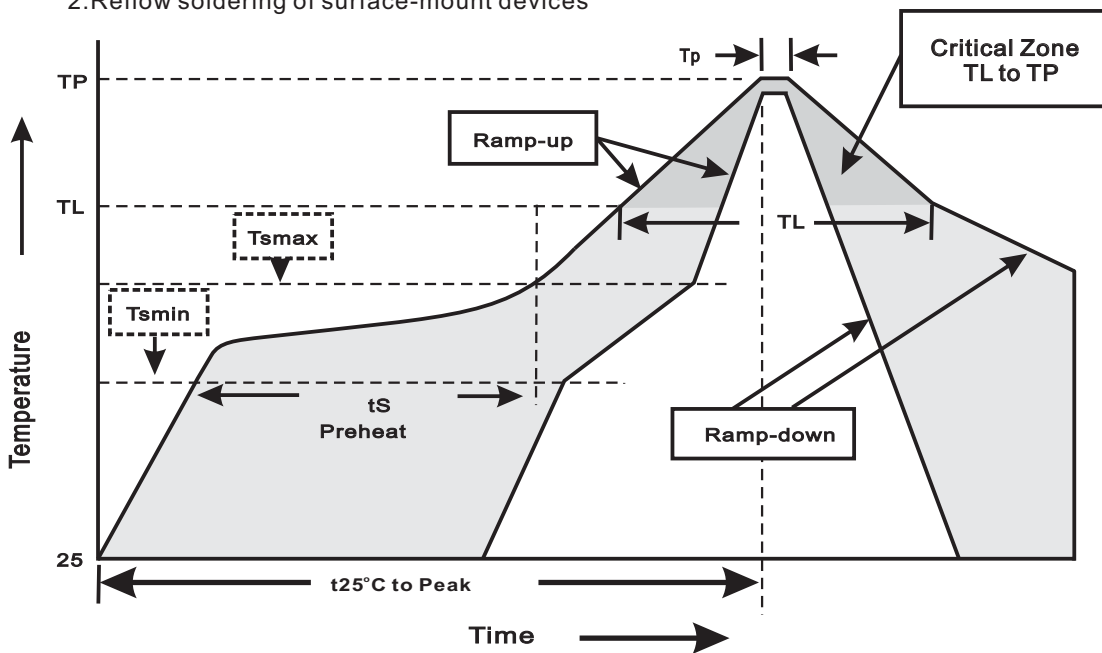
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Reel packing

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-523	7"	3,000	4.0	30,000	183*123*183	178	382*257*387	240,000	11.6

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(TL to TP)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(ts)	150°C 200°C 60~120sec
Tsmax to TL -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(TL) -Time(tL)	217°C 60~260sec
Peak Temperature(TP)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(tP)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes