

FMOS2SK3018-Q1-H

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FMOS2SK3018-Q1-H

0.1A 30V N-Channel Enhancement Mode MOSFET ESD Protection

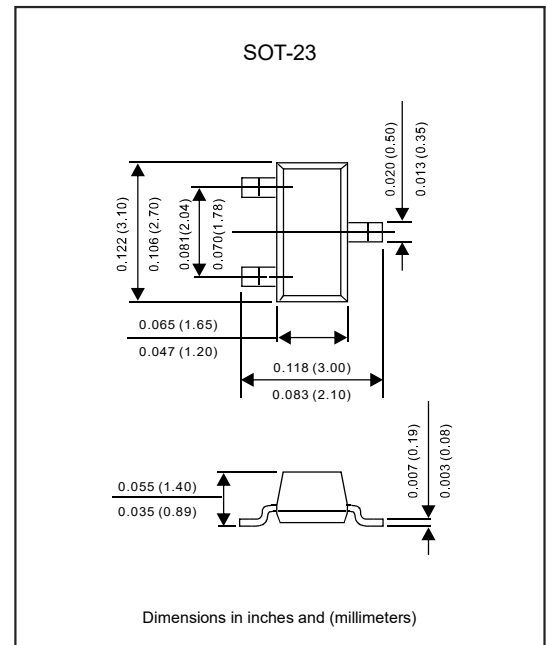
Features

- $V_{DS}=30V$, $I_D=0.1A$.
- $R_{DS(ON)} \leq 8\Omega$, @ $V_{GS}=4.0V$, $I_D=10mA$.
- $R_{DS(ON)} \leq 13\Omega$, @ $V_{GS}=2.5V$, $I_D=1mA$.
- Low on-resistance.
- Fast switching speed.
- Easily designed drive circuits.
- Easy to parallel.
- ESD protected: 1.5kV .
- Qualified to AEC-Q101 standards for high reliability.
- Lead-free parts meet RoHS requirements.
- Halogen-free (IEC61249-2-21).

Mechanical data

- Epoxy: UL94-V0 rated flame retardant.
- Case : Molded plastic, SOT-23.
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026.
- Weight : Approximated 11mg.

Package outline



Maximum ratings (At $T_A=25^\circ C$ unless otherwise noted)

Parameter	Symbol	Ratings	Unit
Drain-source voltage	V_{DS}	30	V
Gate-source voltage	V_{GS}	± 20	V
Continuous drain current	I_D	0.1	A
Power dissipation	P_D	0.35	W
Operating junction temperature	T_J	+150	$^\circ C$
Storage temperature range	T_{STG}	-55 to +150	$^\circ C$
Thermal resistance, junction to ambient	$R_{\theta JA}$	357	$^\circ C/W$

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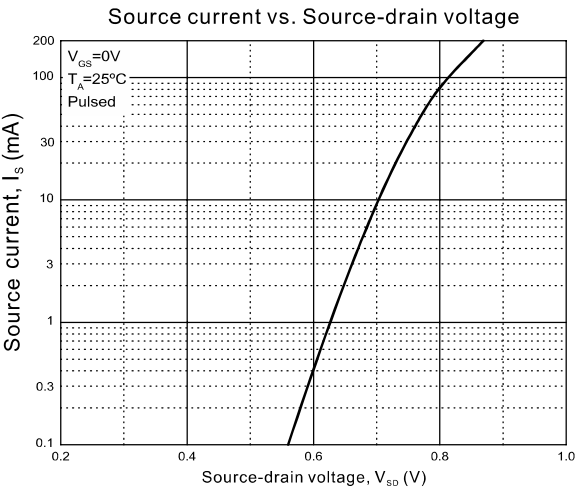
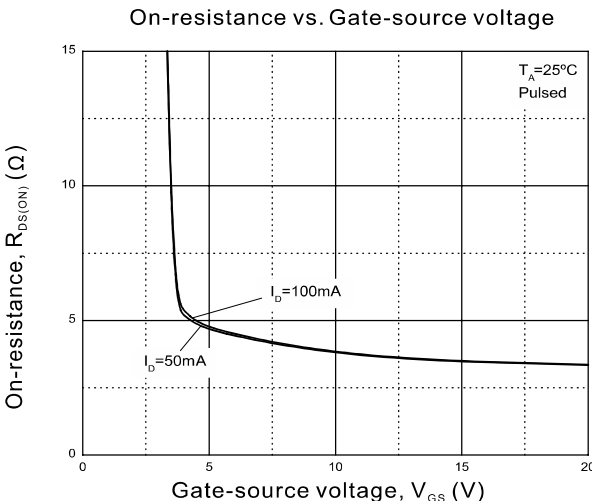
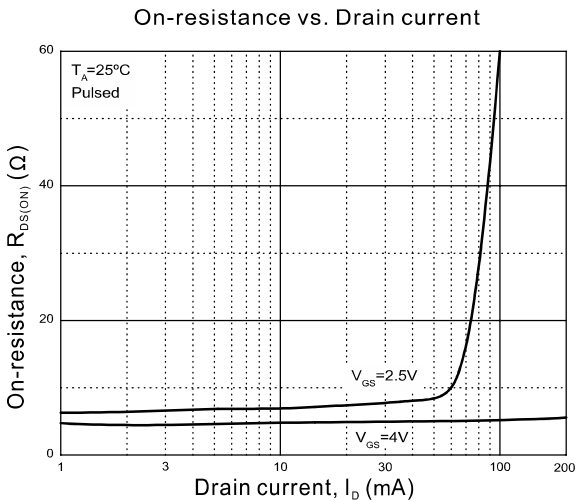
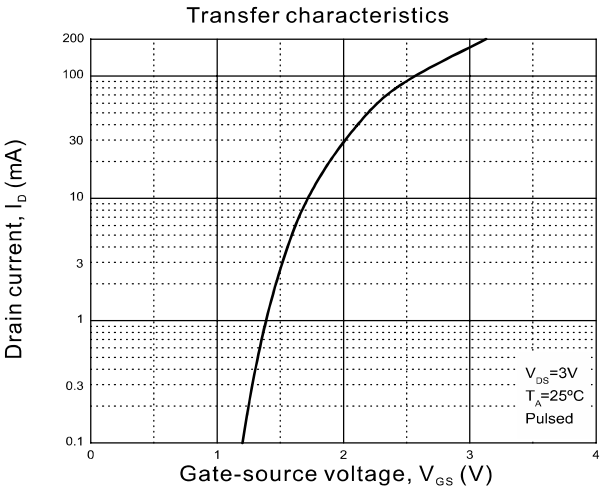
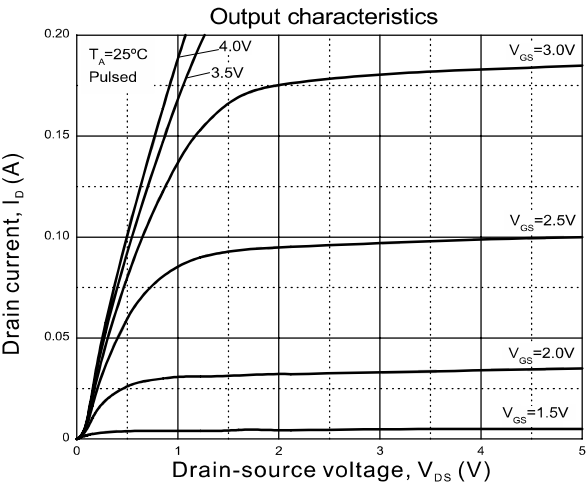
Electrical characteristics (At $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	BV_{DSS}	$I_D=10\mu A, V_{GS}=0V$	30			V
Drain-source leakage current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$			0.2	μA
Gate-source leakage current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 3	μA
On characteristics						
Gate threshold voltage	$V_{GS(TH)}$	$V_{DS}=3V, I_D=100\mu A$	0.8		1.5	V
Static drain-source on-resistance	$R_{DS(ON)}$	$V_{GS}=4V, I_D=10mA$			8	Ω
		$V_{GS}=2.5V, I_D=1mA$			13	
Forward Transconductance	g_{FS}	$V_{DS}=3V, I_D=10mA$	20			mS
Dynamic parameters (Note1)						
Input capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=5V, f=1.0MHz$		13		pF
Out capacitance	C_{oss}			9		pF
Reverse transfer capacitance	C_{rss}			4		pF
Switching parameters (Note1)						
Turn-on delay time	$t_{d(on)}$	$V_{DD}=5V, V_{GS}=5V, R_g=10\Omega, R_L=500\Omega, I_D=10mA$		15		ns
Rise time	t_r			35		
Turn-off delay time	$t_{d(off)}$			80		
Fall time	t_f			80		

Note: 1. These parameters have no way to verify.

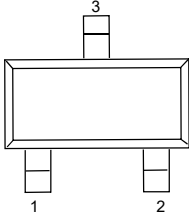
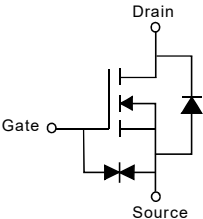
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Rating and characteristic curves



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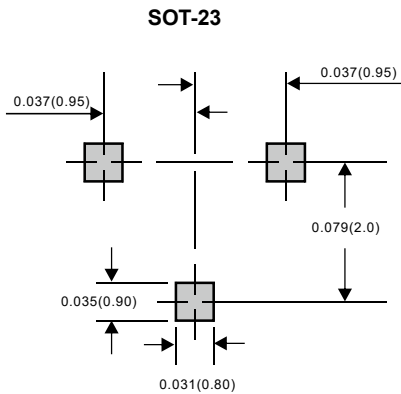
Pinning information

Pin	Simplified outline	Symbol
Pin 1 Gate Pin 2 Source Pin 3 Drain		

Marking

Type number	Marking code
FMOS2SK3018-Q1-H	KN

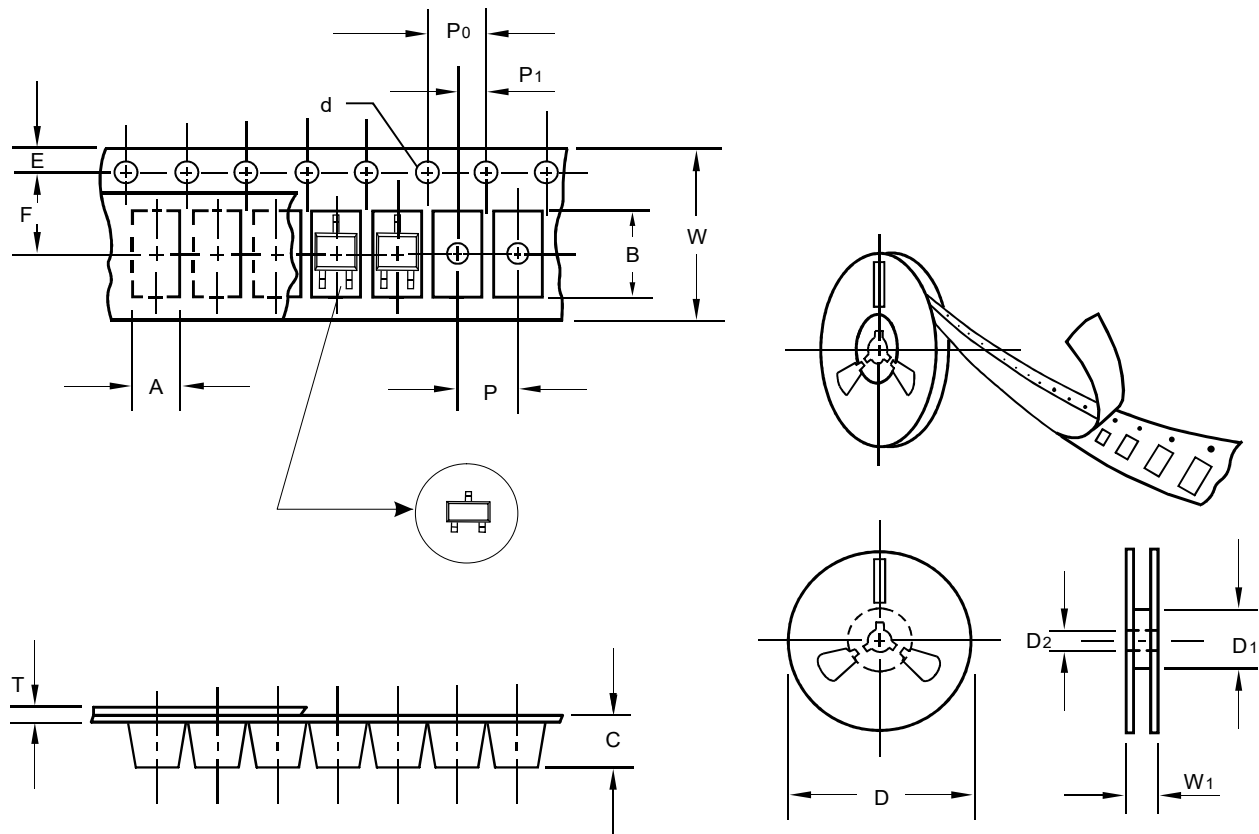
Suggested solder pad layout



Dimensions in inches and (millimeters)

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Packing information



unit:mm

Item	Symbol	Tolerance	SOT-23
Carrier width	A	0.5	3.15
Carrier length	B	0.5	2.77
Carrier depth	C	0.5	1.22
Sprocket hole	d	0.5	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	0.5	0.23
Tape width	W	0.5	8.00
Reel width	W1	5.0	11.40

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

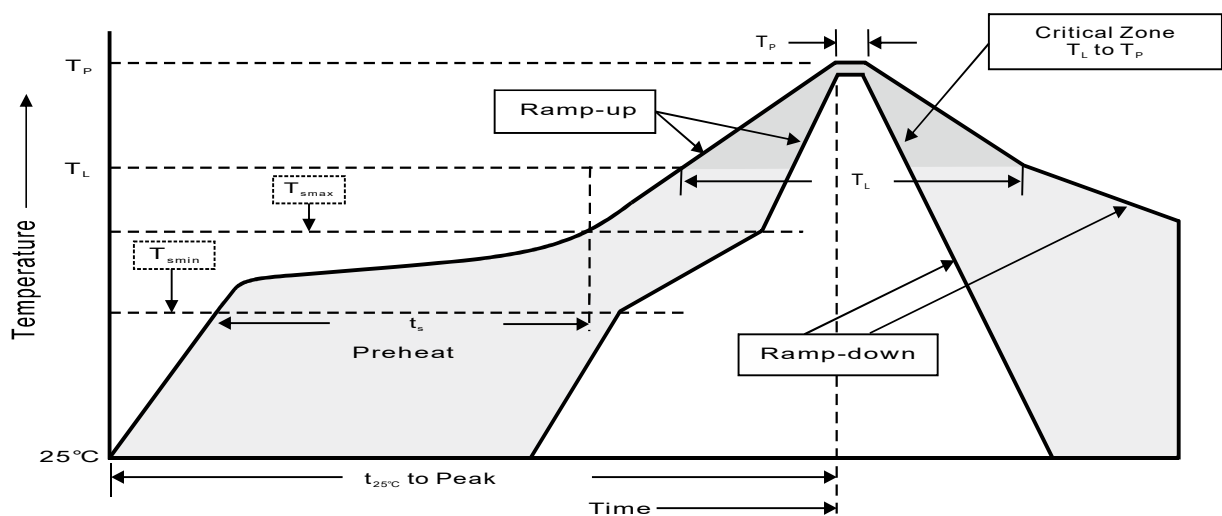
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Reel packing

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)
SOT-23	7"	3,000	4.0	30,000	183*123*183	178	382*257*387	240,000

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 (T_{smin}) - Temperature Max (T_{smax}) - Time (Min to Max) (t_s)	150°C 200°C 60 ~ 120 sec
T_{smax} to T_L - Ramp-up rate	< 3 °C/sec
Time maintained above : - Temperature (T_L) - Time (T_L)	217°C 60 ~ 260 sec
Peak temperature (T_p)	255 °C -0/+5°C
Time with 5°C of actual peak temperature (T_p)	10 ~30 sec
Ramp-down rate	< 6 °C/sec
Time 25°C to peak temperature	< 6 minutes