

FMOSBSS84KW-Q1

List

List.....	1
Package outline.....	2
Features.....	2
Applications.....	2
Mechanical data.....	2
Maximum ratings	2
Electrical characteristics.....	3
Rating and characteristic curves.....	4
Pinning information.....	5
Marking.....	5
Suggested solder pad layout.....	5
Packing information.....	6
Reel packing.....	7
Suggested thermal profiles for soldering processes.....	7

FMOSBSS84KW-Q1

**-0.13A -50V P-Channel Enhancement
Mode MOSFET ESD Protection**

Features

- Energy efficient.
- Low threshold voltage.
- High-speed switching.
- Miniature surface mount package saves board space.
- Qualified to AEC-Q101 standards for high reliability.
- Lead-free parts meet RoHS requirements.
- Suffix "-H" for Halogen-free part, ex. FMOSBSS84KW-Q1-H.

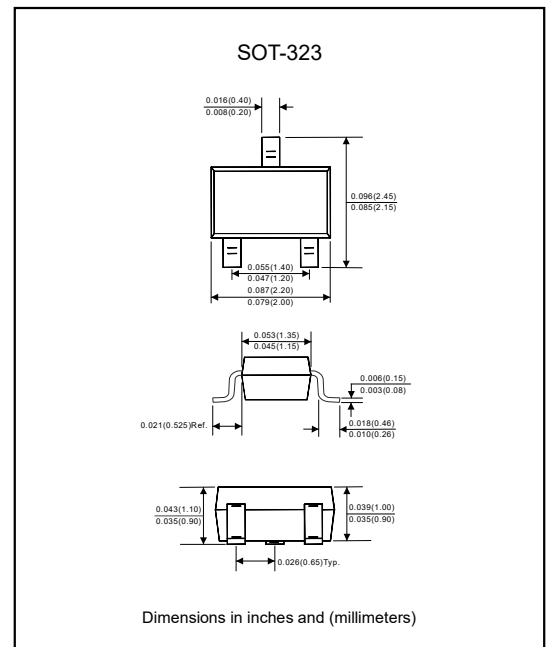
Applications

- DC-DC converters, load switching,
- Power management in portable and battery-powered products.
- Computers, printers, cellular and cordless telephones.

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.

Package outline



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

Parameter	Symbol	Ratings	Unit
Drain-source voltage	-V _{DS}	50	V
Gate-source voltage	V _{GS}	±20	V
Continuous drain current	-I _D	0.13	A
Drain current pulse (Note1) (t _p ≤10μs)	-I _{DM}	0.52	A
Power dissipation	P _D	225	mW
Thermal resistance junction to ambient (Note2)	R _{θJA}	556	°C/W
Operating Junction temperature	T _J	+150	°C
Storage temperature range	T _{STG}	-55 to +150	°C
Lead temperature for soldering purposes, for 5 seconds	T _L	260	°C

FMOSBSS84KW-Q1

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Off characteristics						
Drain-source breakdown voltage	-BV _{DSS}	-I _D =250μA, V _{GS} =0V	50			V
Drain-source leakage current	-I _{DSS}	-V _{DS} =25V, V _{GS} =0V			0.1	μA
		-V _{DS} =50V, V _{GS} =0V			15	
Gate-source leakage current	I _{GSS}	V _{GS} =±20V, V _{GS} =0V			±10	μA
On characteristics						
Gate threshold voltage (Note3)	-V _{GS(th)}	V _{DS} =V _{GS} , -I _D =250μA	0.9		2	V
Static drain-source on-resistance (Note3)	R _{DS(ON)}	-V _{GS} =5V, -I _D =0.1A			10	Ω
		-V _{GS} =10V, -I _D =0.1A			8	
Forward transconductance (Note1)	g _{FS}	-V _{DS} =25V, -I _D =100mA	50			ms
Dynamic parameters (Note4)						
Input capacitance	C _{iss}	V _{GS} =0V, -V _{DS} =5V, f=1.0MHz		30		pF
Out capacitance	C _{oss}			10		
Reverse transfer capacitance	C _{rss}			5		
Switching parameters (Note4)						
Turn-on delay time	t _{d(on)}	-V _{DD} =15V, R _L =50Ω, -I _D =2.5A		2.5		nS
Rise time	t _r			1		
Turn-off delay time	t _{d(off)}			16		
Fall time	t _f			8		
Source-drain diode ratings and characteristics						
Diode continuous current	-I _S				0.13	A
Maximum pulsed drain-source diode forward current	-I _{SM}				0.52	A
Drain-source diode forward voltage (Note3)	-V _{SD}	-I _S =0.13A, V _{GS} =0V			2.2	V

Note : 1. Repetitive rating: pulse width limited by junction temperature.

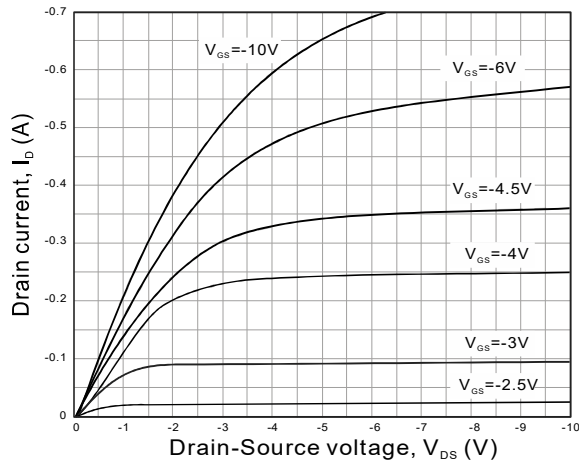
2. Surface mounted on FR4 board, $t_s \leq 10\text{s}$.3. Pulse test: pulse widths $\leq 300\mu\text{s}$, duty cycles $\leq 2\%$.

4. Guaranteed by design, not subject to producing.

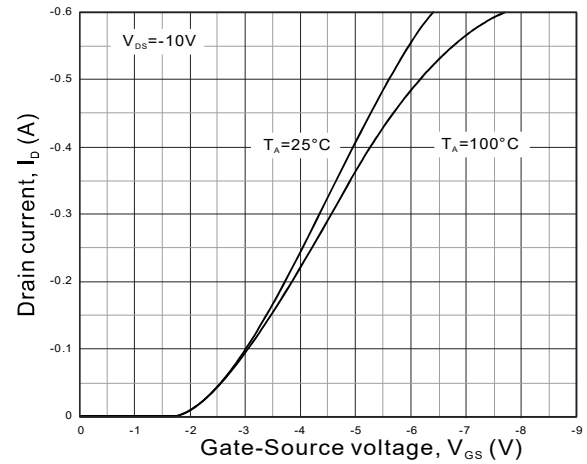
FMOSBSS84KW-Q1

Rating and characteristic curves

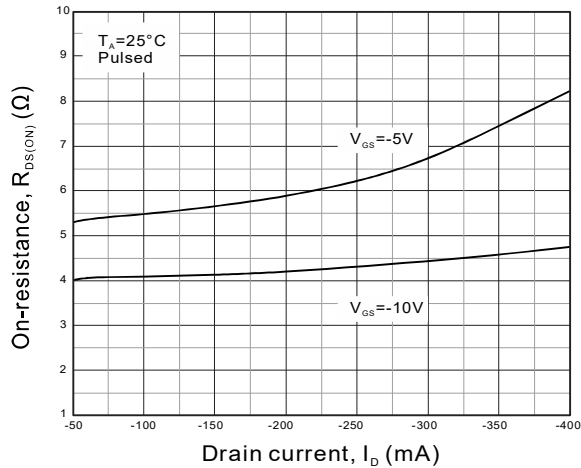
Output characteristics



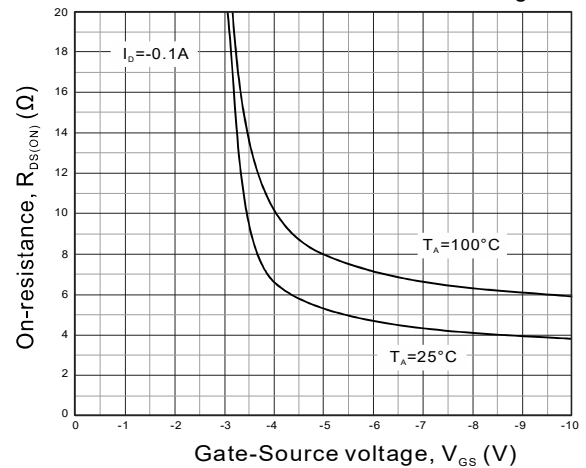
Transfer characteristics



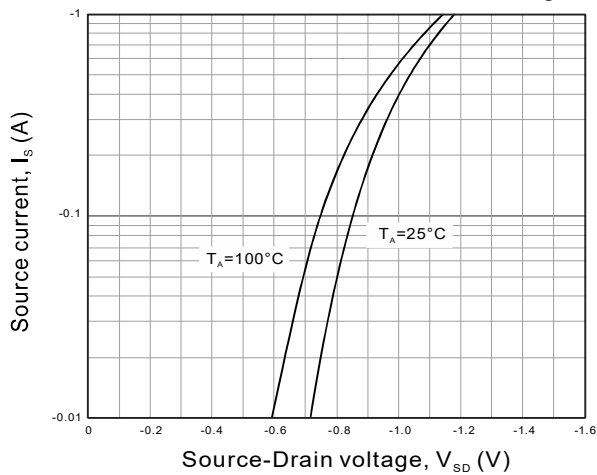
On-resistance vs. Drain current



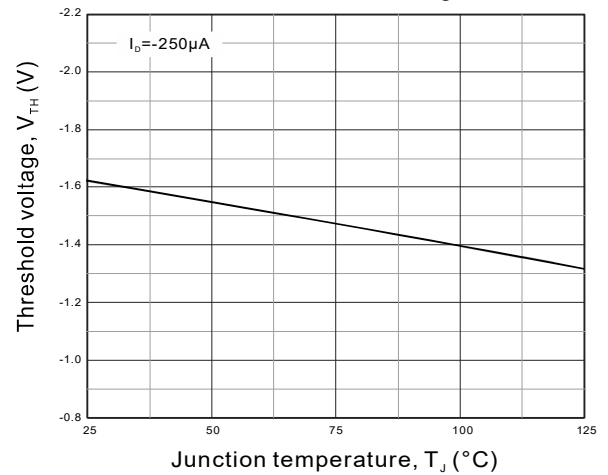
On-resistance vs. Gate-Source voltage



Source current vs. Source-Drain voltage

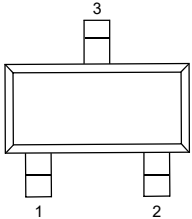
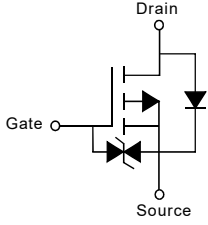


Threshold voltage



FMOSBSS84KW-Q1

Pinning information

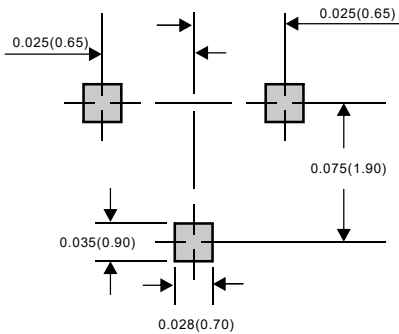
Pin	Simplified outline	Symbol
Pin 1 Gate Pin 2 Source Pin 3 Drain		

Marking

Type number	Marking code
FMOSBSS84KW-Q1	84K

Suggested solder pad layout

SOT-323



Dimensions in inches and (millimeters)

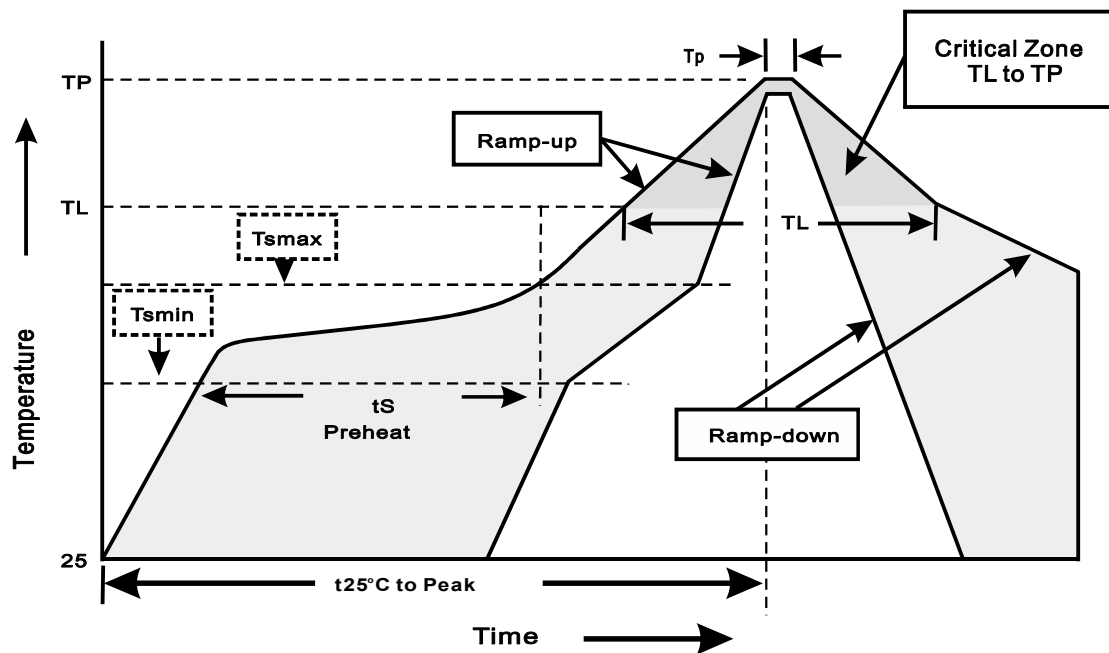
FMOSBSS84KW-Q1

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-323	7"	3,000	4.0	30,000	183*183*123	178	382*262*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 _{smín}) -Temperature Max(T _{smáx}) -Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{smáx} 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