FMSNN3406-H

List

FMSNN3406-H

3.6A 30V N-Channel Trench Enhancement Mode MOSFET

Features

- V_{DS}=30V, I_D=3.6A.
- $R_{DS(ON)}$ ≤ 65mΩ, @V_{GS}=10V, I_D=3.6A.
- $R_{DS(ON)}$ ≤ 105mΩ, @V_{GS}=4.5V, I_D=2.8A.
- Provide excellent on-resistance and low gate charge.
- Lead-free parts meet RoHS requirements
- Halogen-free (IEC61249-2-21).

Application

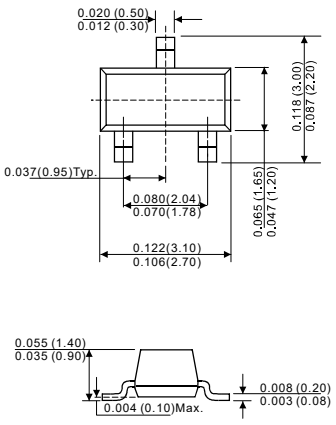
- Load switching and PWM applications.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant.
- Case : Molded plastic, SOT-23.
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026.
- Mounting Position : Any.

Package outline

SOT-23



Dimensions in inches and (millimeters)

Maximum Ratings (At T_A=25°C Unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain source voltage	V_{DS}	30	V
Gate source voltage	V_{GS}	±20	V
Drain current continuous	I_D	3.6	A
Pulsed drain current (Note1)	I_{DM}	15	A
Power dissipation	P_D	0.35	W
Thermal resistance, junction to ambient	$R_{\theta JA}$	357	°C/W
Operating junction temperature	T_J	+150	°C
Storage temperature range	T_{STG}	-50 to +150	°C

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Electrical characteristics (At T_A=25°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	30			V
Drain-Source leakage current	I_{DSS}	V_{DS}=24V, V_{GS}=0V			1	μA
Gate-Source leakage current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V			±100	nA
On characteristics						
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1		3	V
Static drain-source on-resistance (Note2)	$R_{DS(ON)}$	V_{GS}=10V, I_D=3.6A		40	65	mΩ
		V_{GS}=4.5V, I_D=2.8A		72	105	
Forward transconductance (Note2)	g_{FS}	V_{DS}=5V, I_D=3.6A	3			S
Dynamic characteristics (Note3)						
Input capacitance	C_{iss}	V_{DS}=15V, V_{GS}=0V, f=1.0MHz			375	pF
Output capacitance	C_{oss}			57		
Reverse transfer capacitance	C_{rss}			39		
Switching characteristics (Note3)						
Turn-on delay time	$t_{d(on)}$	V_{DS}=15V, V_{GS}=10V, R_G=3Ω, R_L=2.2Ω		4.6		ns
Turn-on rise time	t_r			1.9		
Turn-off delay time	$t_{d(off)}$			20.1		
Turn-off fall time	t_f			2.6		
Drain-Source diode characteristics and maximum ratings						
Drain-Source diode forward voltage	V_{SD}	I_S=1A			1	V

Note: 1. Repetitive rating: pulse width limited by maximum junction temperature.
2. Pulsed test: pulse width ≤ 300μs, duty cycle ≤ 0.5%.
3. These parameters have no way to verify.

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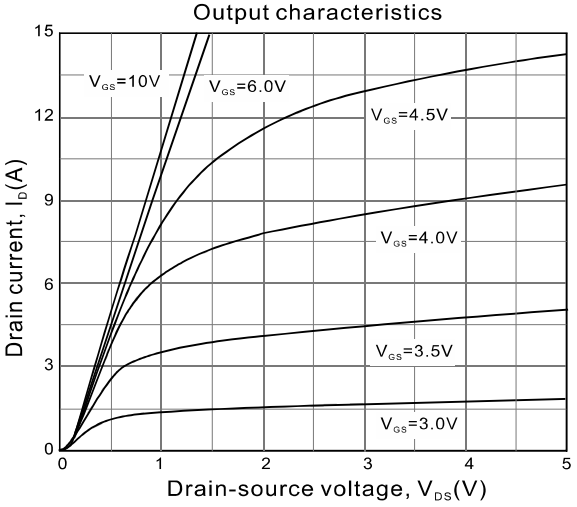
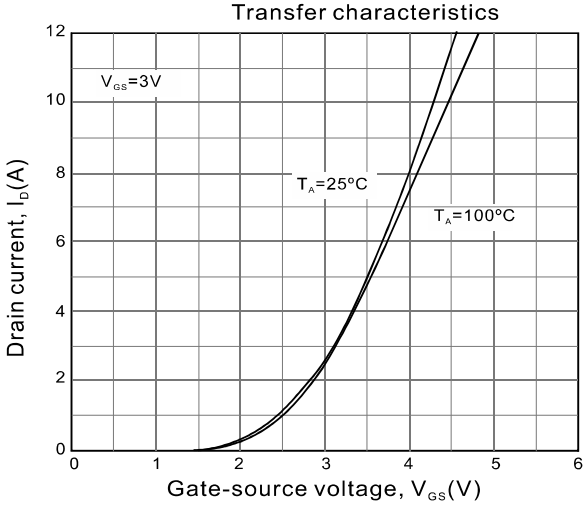
Rating and characteristic curves

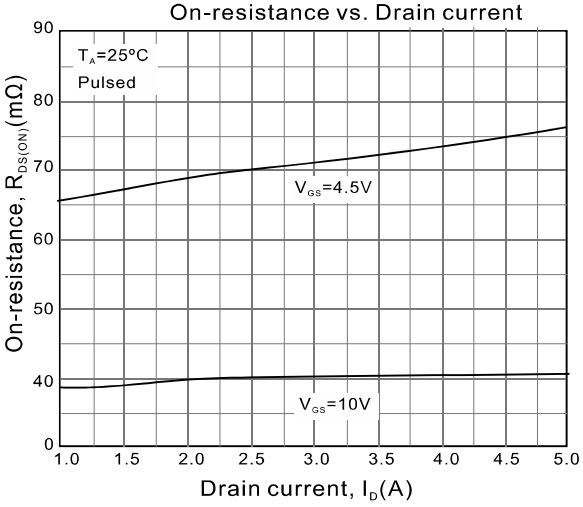
Output characteristics



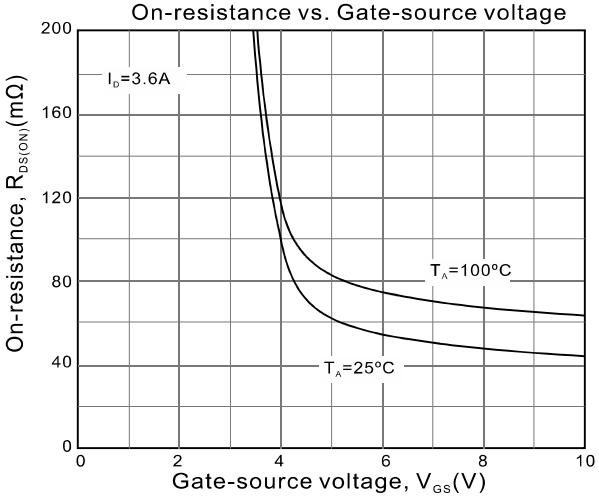
Transfer characteristics



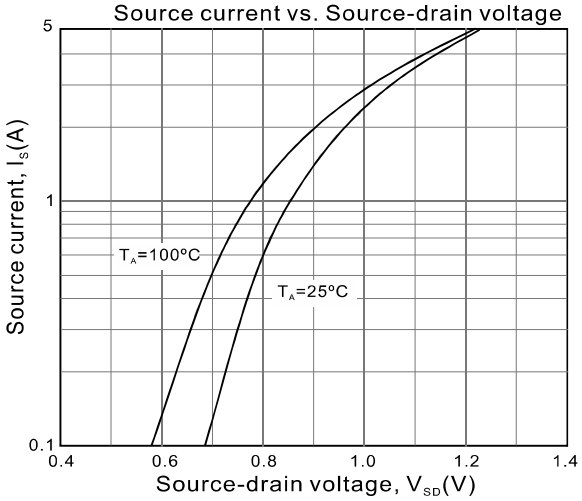
On-resistance vs. Drain current



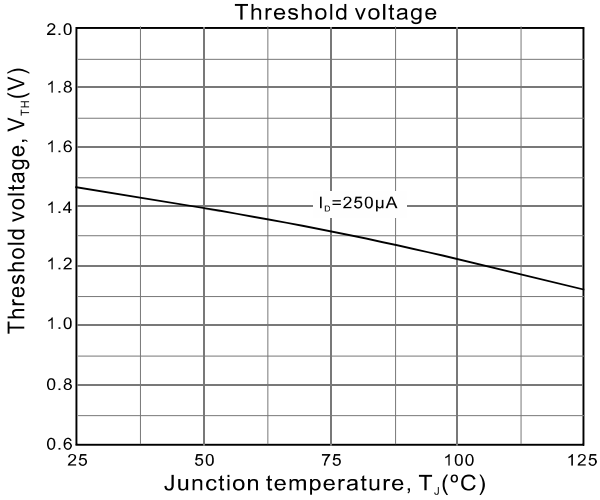
On-resistance vs. Gate-source voltage



Source current vs. Source-drain voltage



Threshold voltage



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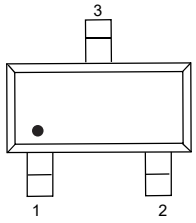
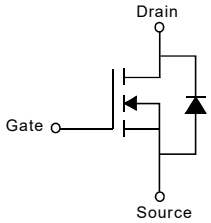
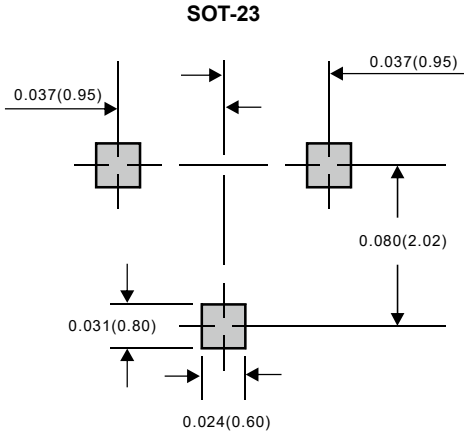
Pinning information

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

Marking

Type number	Marking code
FMSNN3406-H	R6

Suggested solder pad layout



Dimensions in inches and (millimeters)

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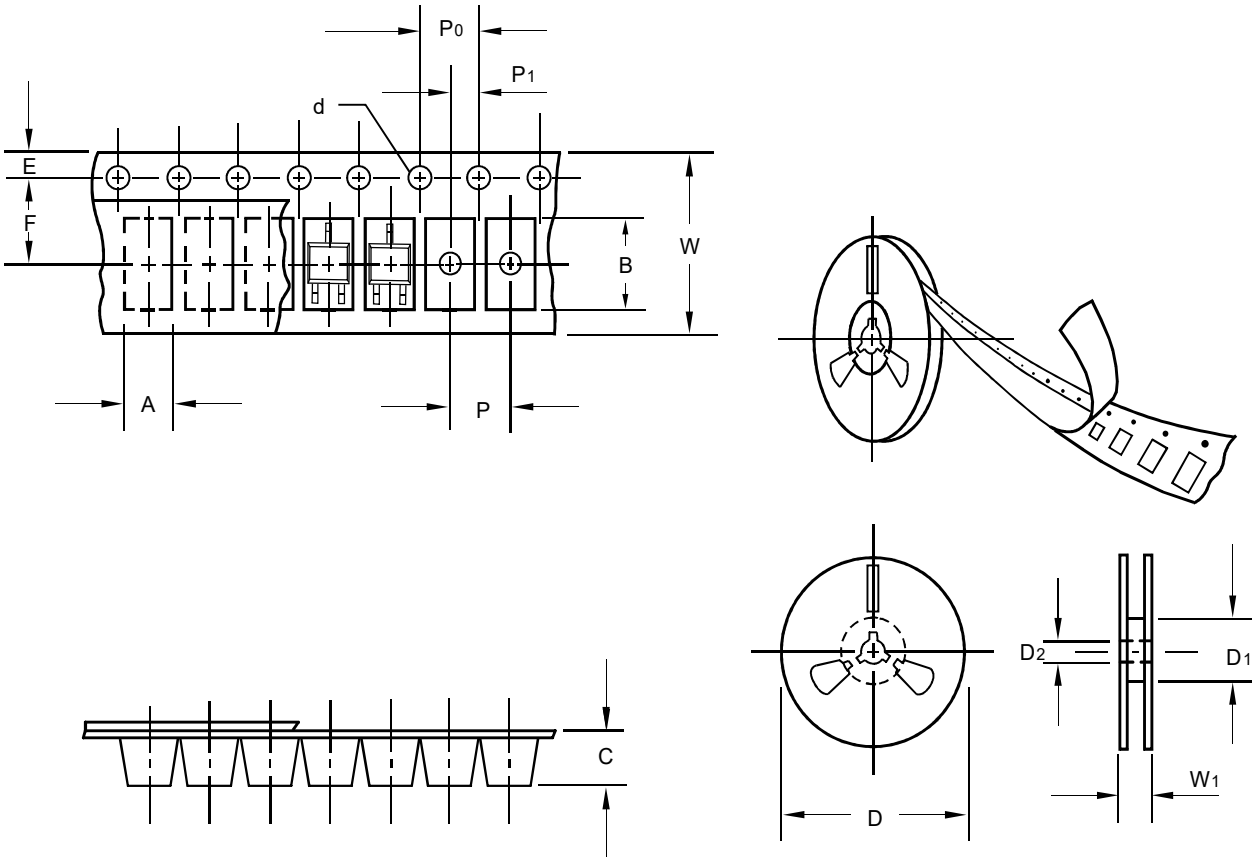
Packing information



unit:mm

Item	Symbol	Tolerance	SOT-23
Carrier width	A	0.1	3.15
Carrier length	B	0.1	2.77
Carrier depth	C	0.1	1.22
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	54.40
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
Tape width	W	0.1	8.00
Reel width	W_1	0.1	12.30

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

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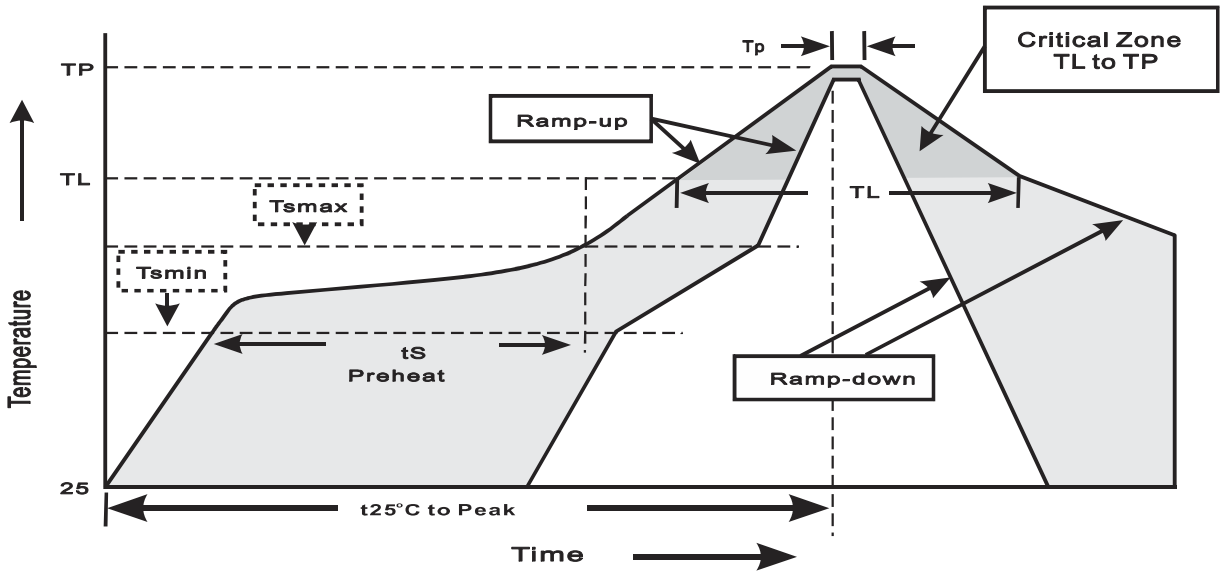
Reel packing

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(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