FHC1213

Dual N-channel Trench MOSFET

Features:

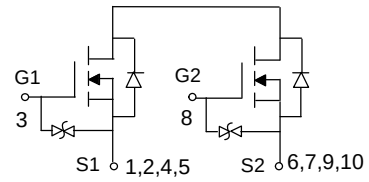
- Trench MOSFET technology
- Extremely Low RSS(ON)
- ESD HBM Class 2
- Common Drain Design
- RoHS compliant (Note 4)
- Halogen-free (Note 4)

General Features

- V_{SSS}= 12V , IS=13A
  $R_{SS(ON)}$ = 1.6 mΩ (Typ) @V_{GS}=4.5V
  $R_{SS(ON)}$ = 1.8 mΩ (Typ) @V_{GS}=3.8V
  $R_{SS(ON)}$ = 2.2 mΩ (Typ) @V_{GS}=3.1V
  $R_{SS(ON)}$ = 3.5 mΩ (Typ) @V_{GS}=2.5V

Applications

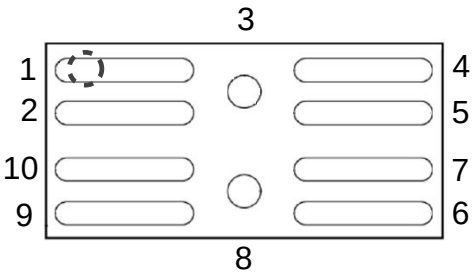
- Portable appliances
- Battery management



1/2/4/5: Source1 6/7/9/10: Source2
3 : Gate1 8 : Gate2

Schematic diagram

Marking and pin assignment



Bottom View

Maximum Ratings (T_A = 25℃ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{SS}	Source - Source Voltage	12	V
I_S	Source Current - Continuous (T_C = 25°C) (Note 1)	13	A
	Source Current - Continuous (T_C = 100°C) (Note 1)	10	A
I_{SM}	Source Current - Pulsed (Note 2)	52	A
V_{GS}	Gate-Source Voltage	± 8	V
P_D	Power Dissipation (T_C = 25°C)	0.58	W
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150	°C

Thermal Characteristics

Symbol	Parameter	Value	Units
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient Steady State (Note 3)	218	°C/W

Notes:

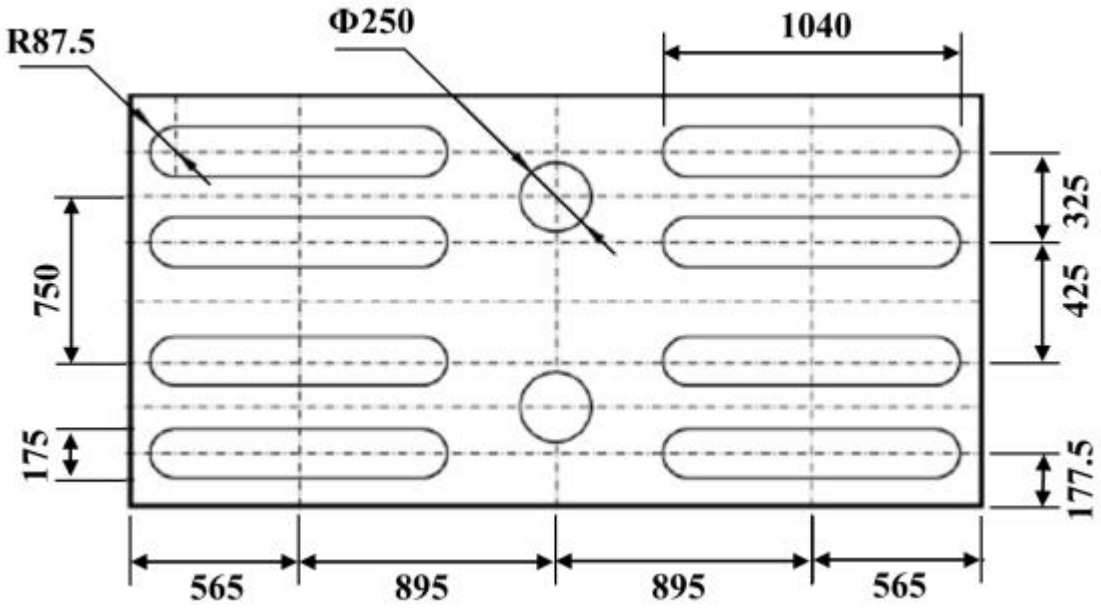
1. The max Source current rating base on silicon
2. Pulse Test: Pulse width ≤ 300 us, Duty cycle ≤ 2%
3. Mount on 1X1 inch 2oz FR - 4 PCB
4. Contact sales for detail information

Electrical Characteristics (T_J = 25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
Static Characteristics						
BV_{SSS}	Source-Source Breakdown Voltage	V_{GS} = 0 V, I_S = 250 µA	12			V
I_{SSS}	Zero Gate Voltage Source Current	V_{SS} = 12 V, V_{GS} = 0 V			1	µA
I_{GSS}	Gate Leakage Current	V_{GS} = ±8 V, V_{SS} = 0 V			±10	µA
$V_{GS(TH)}$	Gate Threshold voltage	V_{SS} = V_{GS}, I_S = 1 mA	0.55	0.95	1.35	V
$R_{SS(ON)}$	Source-Source on-state resistance	V_{GS} = 4.5 V, I_S = 4 A		1.6	2.4	mΩ
		V_{GS} = 3.8 V, I_S = 4 A		1.8	2.7	mΩ
		V_{GS} = 3.1 V, I_S = 3 A		2.2	3.5	mΩ
		V_{GS} = 2.5 V, I_S = 2 A		3.5	5.5	mΩ
V_{FSS}	Forward Source to Source Voltage	V_{GS} = 0 V, I_S = 4 A		0.7	1.3	V
Dynamic Characteristics						
C_{ISS}	Input capacitance	V_{SS} = 10 V, V_{GS} = 0 V, F = 1 MHz		3500		pF
C_{OSS}	Output capacitance			450		pF
C_{RSS}	Reverse transfer capacitance			400		pF
R_G	Gate resistance	F = 1 MHz		1		KΩ
Switching Characteristics						
$T_{D(ON)}$	Turn On Delay Time	V_{SS} = 6 V, I_S = 4A, V_{GS} = 4.5 V, R_G = 3 Ω		0.6		ns
T_R	Rise Time			1.4		ns
$T_{D(OFF)}$	Turn Off Delay Time			6.6		ns
T_F	Fall Time			4.0		ns
Q_G	Total Gate Charge	V_{SS} = 6 V, I_S = 4 A, V_{GS} = 4.5 V		23		nC
Q_{GS}	Gate-Source Charge			11		nC
Q_{GD}	Gate-Drain Charge			5		nC

Package Information：WLCSP6-2.92x1.43x0.1

Bottom View



Side View

Disclaimer

The information given in this document describes the independent performance of the product, but similar performance is not guaranteed under other working conditions, and cannot be guaranteed when installed with other products or equipment. To achieve the required performance of the product in actual scenarios, the customer should conduct a complete application test to assess the functionality of the product.

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