Ordering number : ENA1170A

EMH2408

N-Channel Power MOSFET
20V, 4A, 45mΩ, Dual EMH8

ON Semiconductor®
http://onsemi.com

Features

- The EMH2408 incorporates a N-channel MOSFET that feature low ON-resistance and ultrahigh-speed switching, thereby enabling high-density mounting
- 1.8V drive
- Halogen free compliance

Specifications

Absolute Maximum Ratings at Ta=25°C

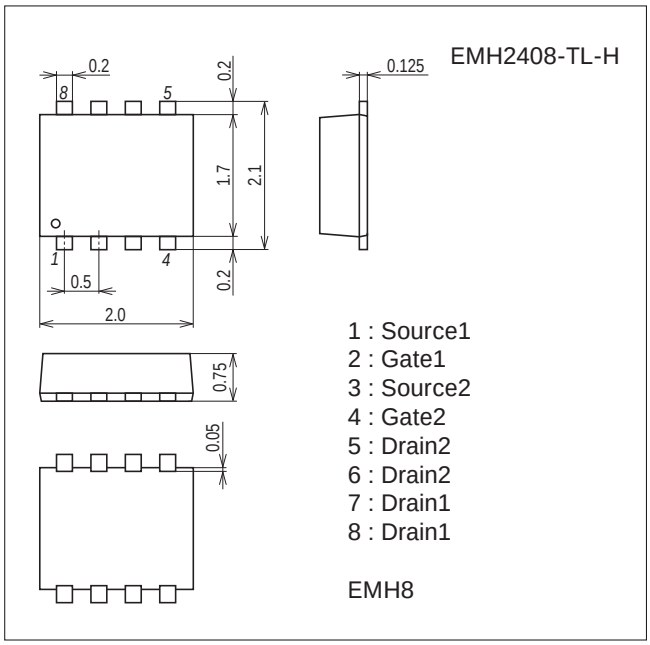
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		20	V
Gate-to-Source Voltage	V_{GSS}		±12	V
Drain Current (DC)	I_D		4	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	16	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (900mm²×0.8mm) 1unit	1.0	W
Total Dissipation	P_T	When mounted on ceramic substrate (900mm²×0.8mm)	1.2	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C

This product is designed to "ESD immunity < 200V*", so please take care when handling.
* Machine Model

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

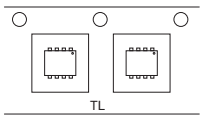
unit : mm (typ)
7045-006



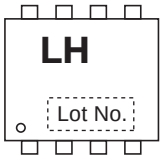
Product & Package Information

- Package : EMH8
- JEITA, JEDEC : -
- Minimum Packing Quantity : 3,000 pcs./reel

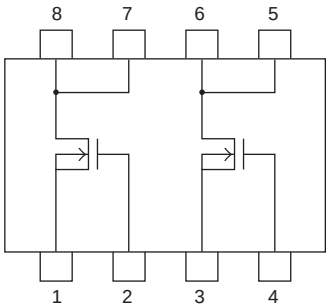
Packing Type : TL



Marking



Electrical Connection



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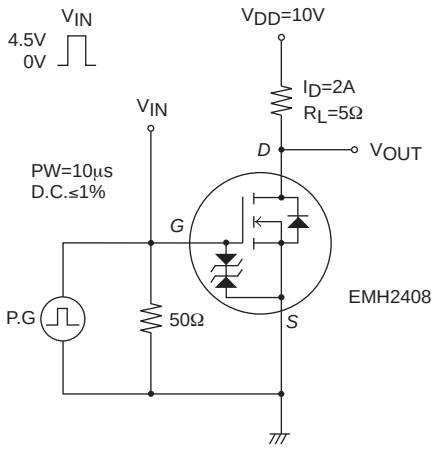
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0V	20			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	0.4		1.3	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=2A	2.0	3.4		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=4A, V_{GS}=4.5V		34	45	mΩ
	R_{DS}(on)2	I_D=1A, V_{GS}=2.5V		49	67	mΩ
	R_{DS}(on)3	I_D=0.5A, V_{GS}=1.8V		74	115	mΩ
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		345		pF
Output Capacitance	Coss			67		pF
Reverse Transfer Capacitance	Crss			52		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		9.2		ns
Rise Time	t_r			60		ns
Turn-OFF Delay Time	t_d(off)			30		ns
Fall Time	t_f			38		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=4.5V, I_D=4A		4.7		nC
Gate-to-Source Charge	Qgs			0.65		nC
Gate-to-Drain “Miller” Charge	Qgd			1.6		nC
Diode Forward Voltage	V_{SD}	I_S=4A, V_{GS}=0V		0.8	1.2	V

Switching Time Test Circuit



Ordering Information

Device	Package	Shipping	memo
EMH2408-TL-H	EMH8	3,000pcs./reel	Pb Free and Halogen Free

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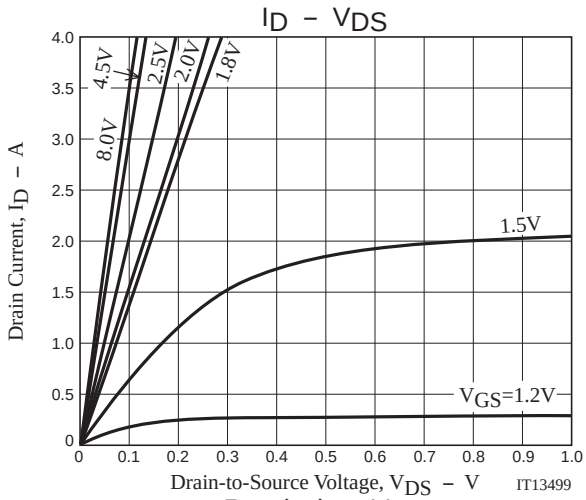

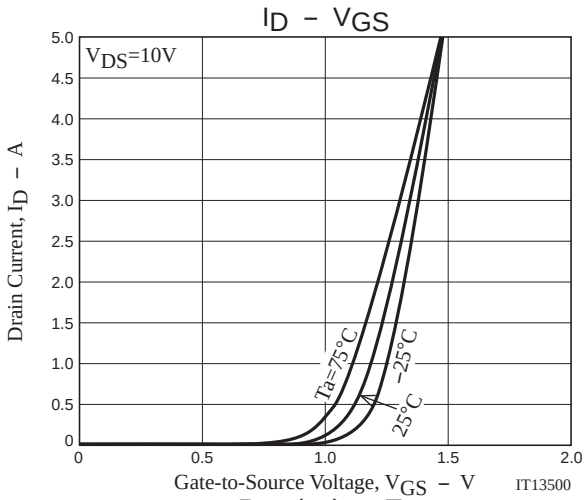

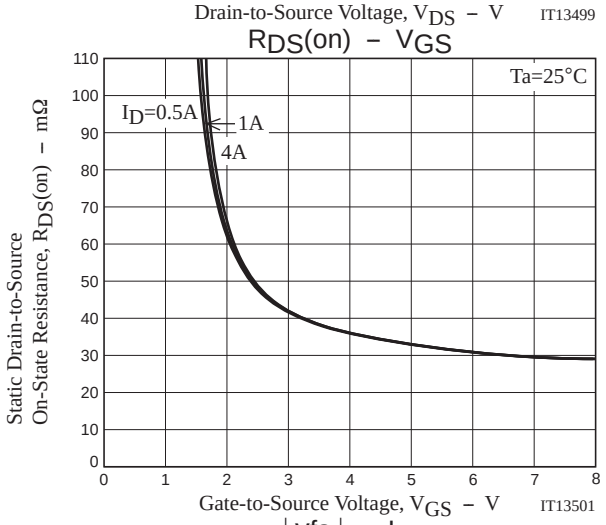

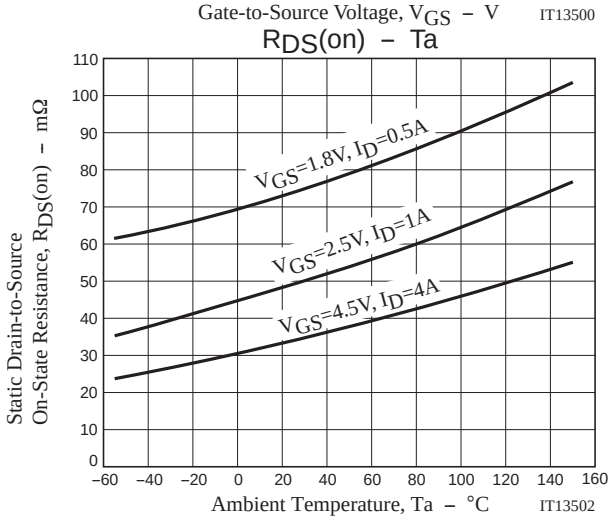

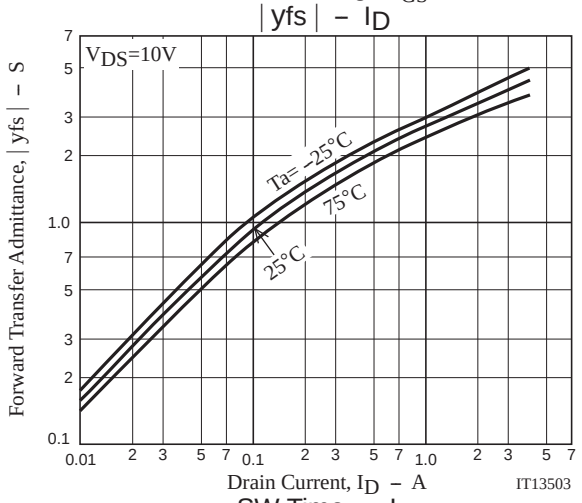

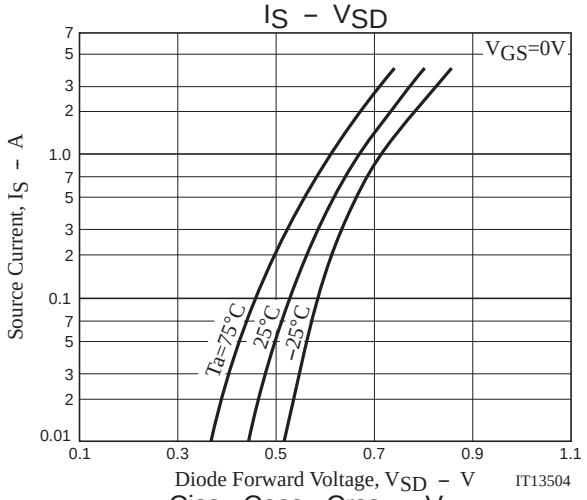

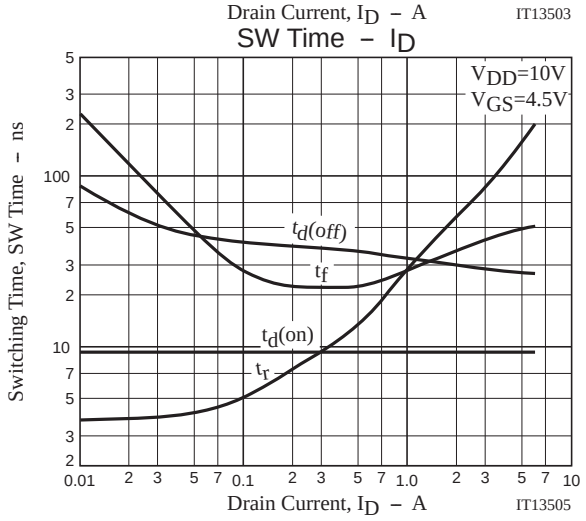

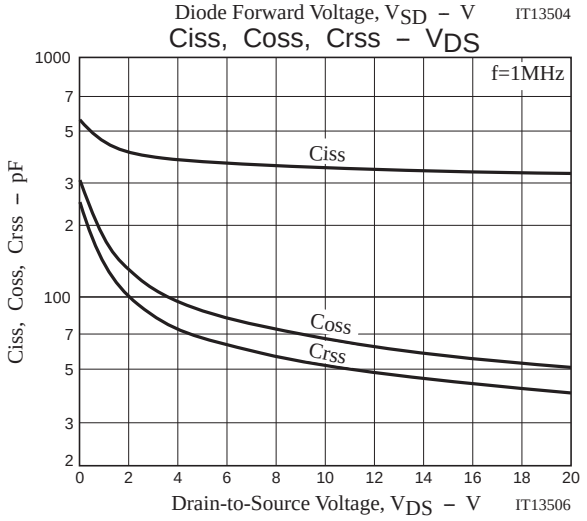

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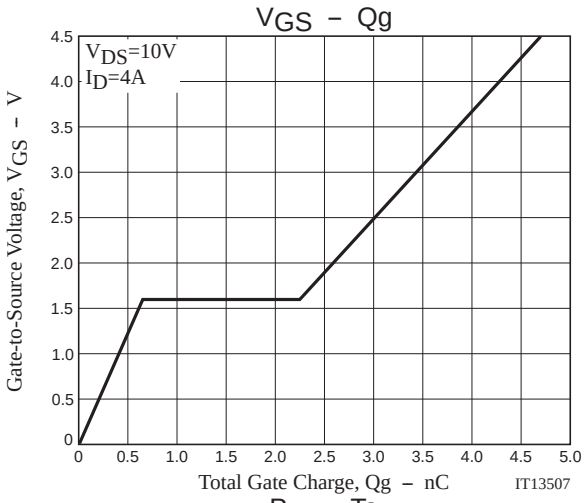

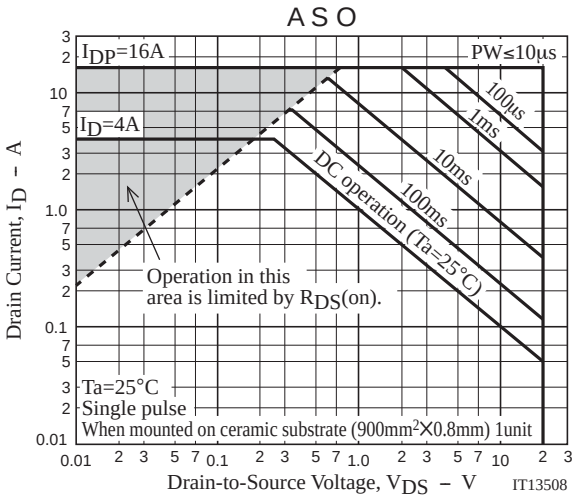

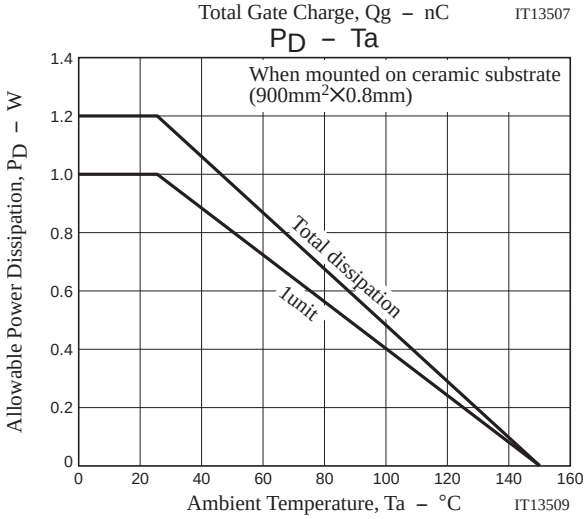

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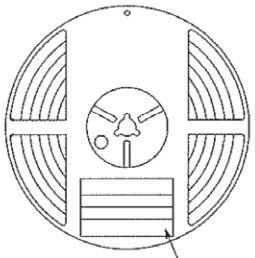
Embossed Taping Specification

EMH2408-TL-H

1. Packing Format

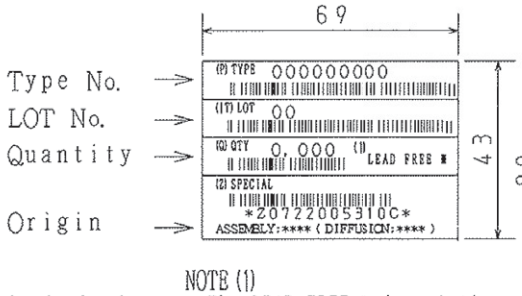
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
EMH8	MCP4	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Packing method



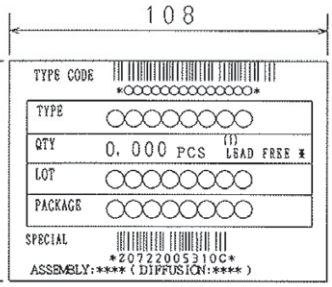
Reel label, Inner box label

(unit:mm)



Outer box label

It is a label at the time of factory shipments. The form of a label may change in physical distribution process.

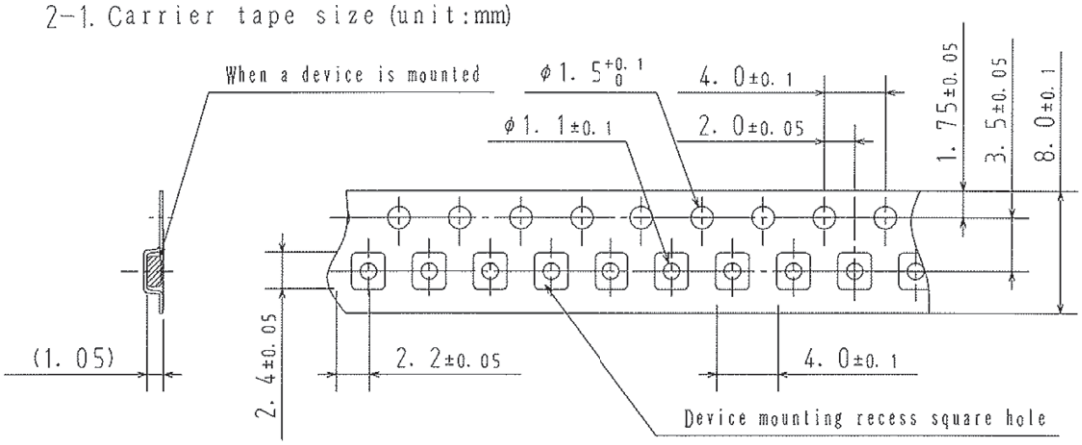


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

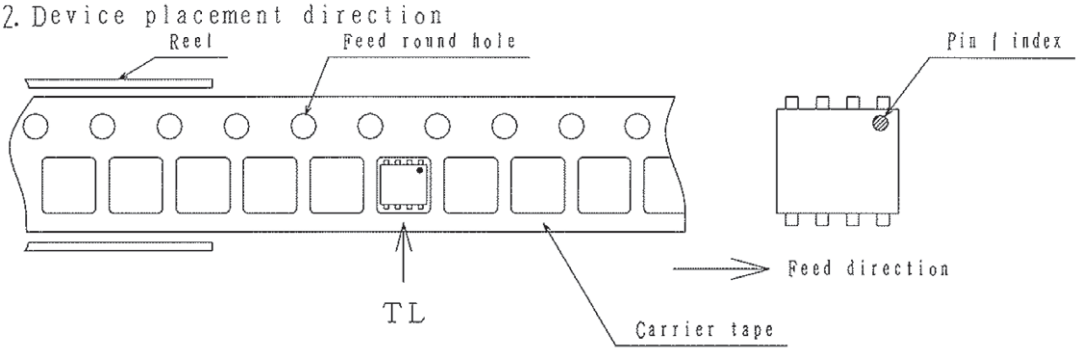
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

2-1. Carrier tape size (unit:mm)



2-2. Device placement direction



Those with pin 1 index on the feed hole side·····TL

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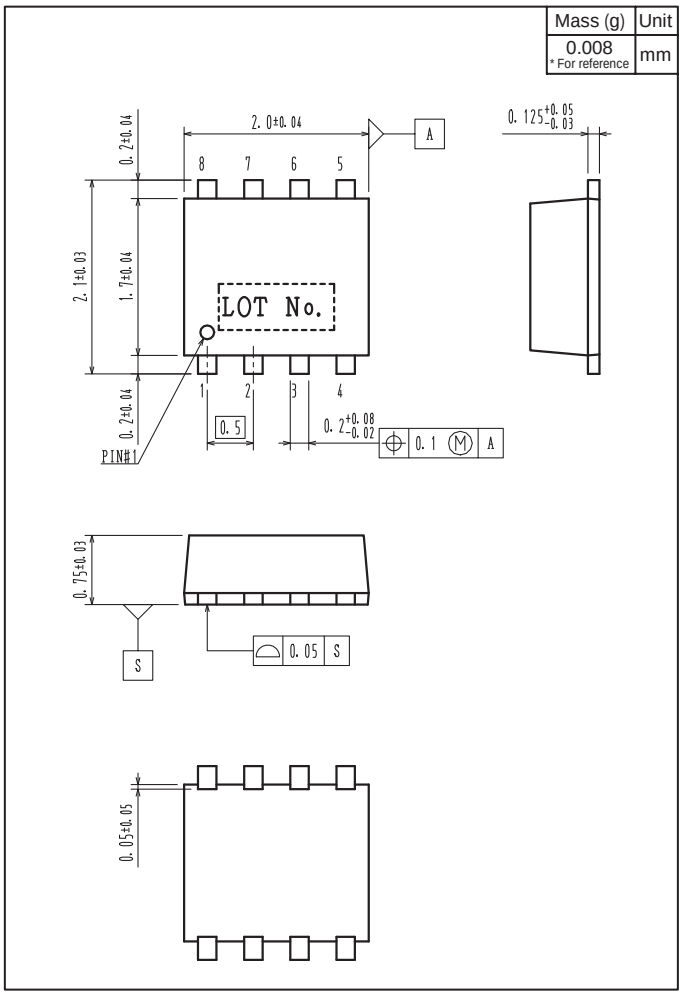
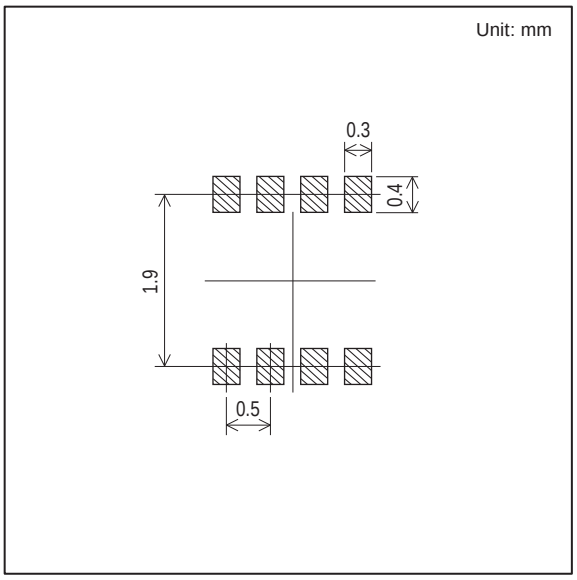
Outline Drawing

EMH2408-TL-H



Land Pattern Example



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Note on usage : Since the EMH2408 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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