



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## EMH2314 — P-Channel Silicon MOSFET General-Purpose Switching Device Applications

### Features

- ON-resistance  $R_{DS(on)1}=28m\Omega$ (typ.)
- 1.8V drive
- Halogen free compliance
- Protection Diode in

### Specifications

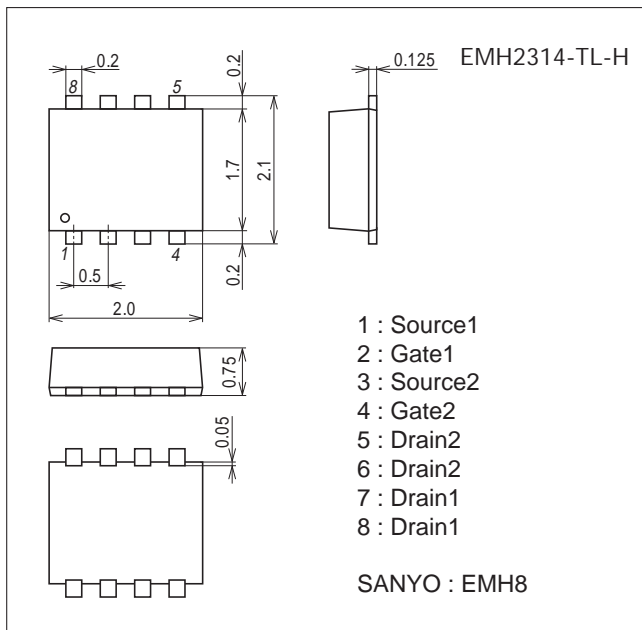
Absolute Maximum Ratings at  $T_a=25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		-12	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 10$	V
Drain Current (DC)	$I_D$		-5	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	-20	A
Allowable Power Dissipation	$P_D$	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm) 1unit	1.0	W
Total Dissipation	$P_T$	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm)	1.2	W
Channel Temperature	$T_{ch}$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

### Package Dimensions

unit : mm (typ)

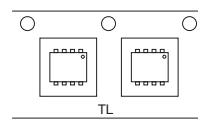
7045-002



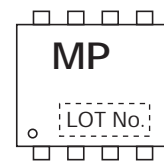
### Product & Package Information

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

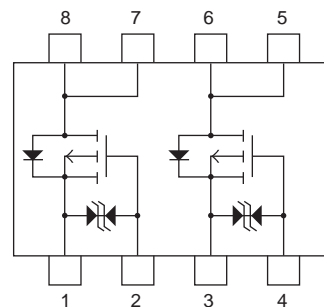
Taping Type : TL



Marking



### Electrical Connection

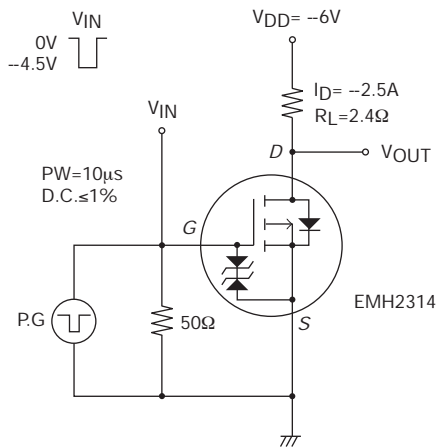


# EMH2314

## Electrical Characteristics at Ta=25°C

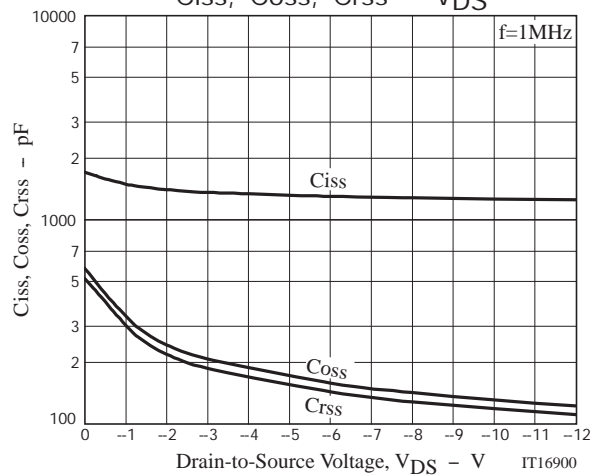
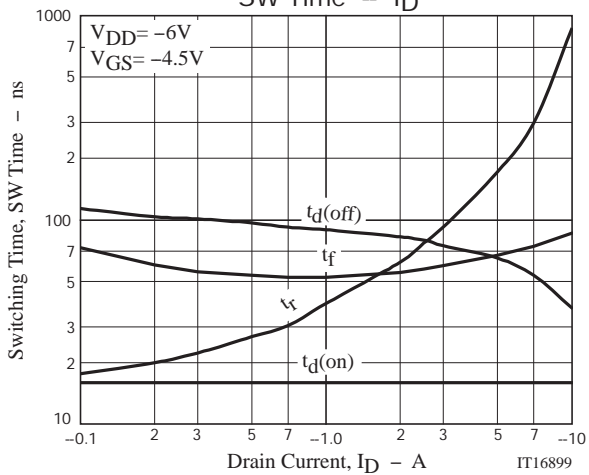
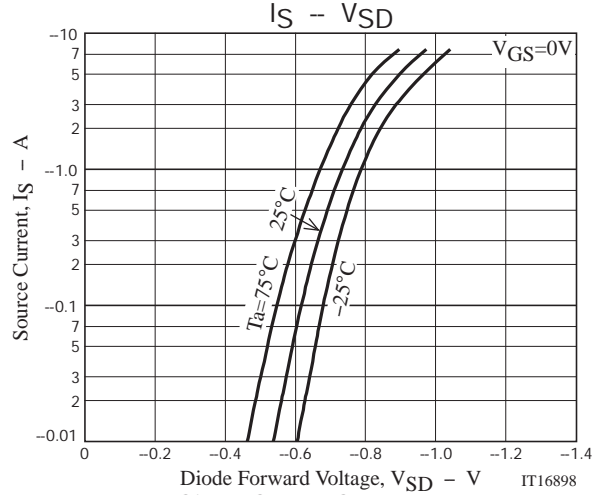
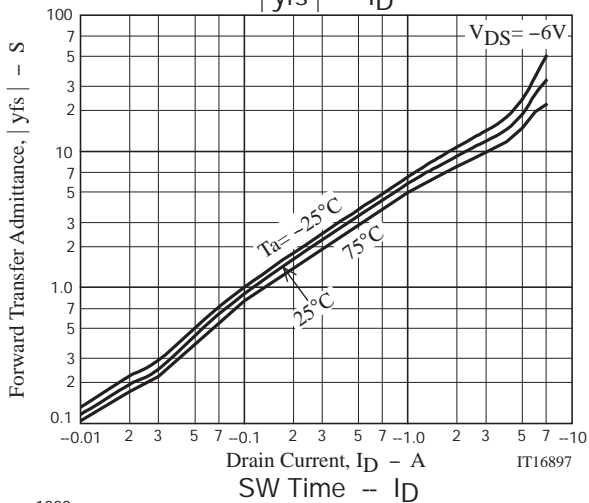
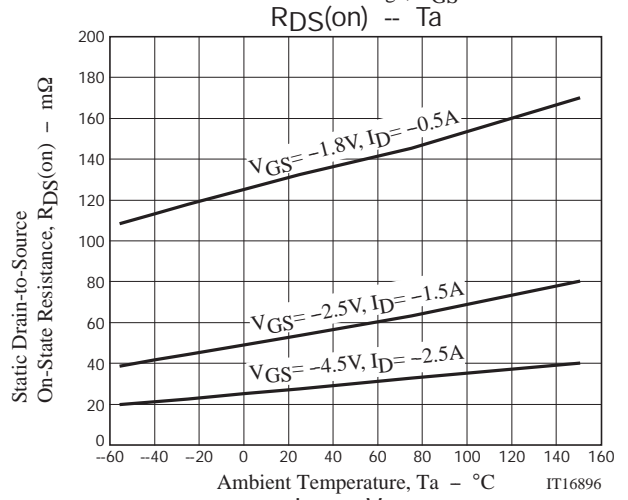
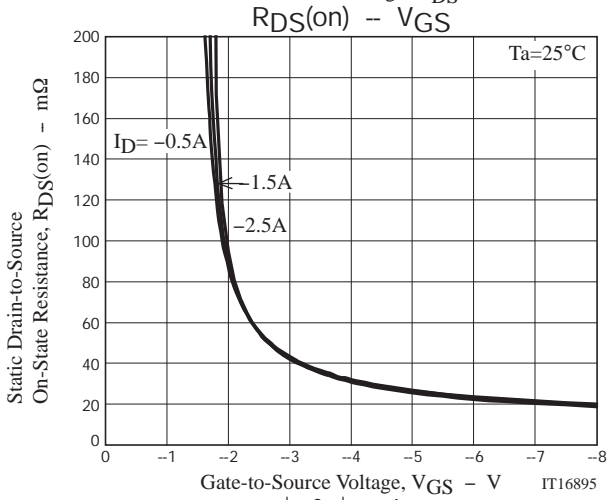
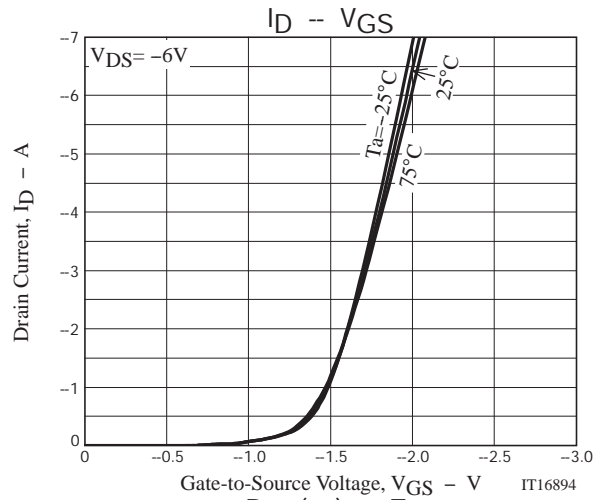
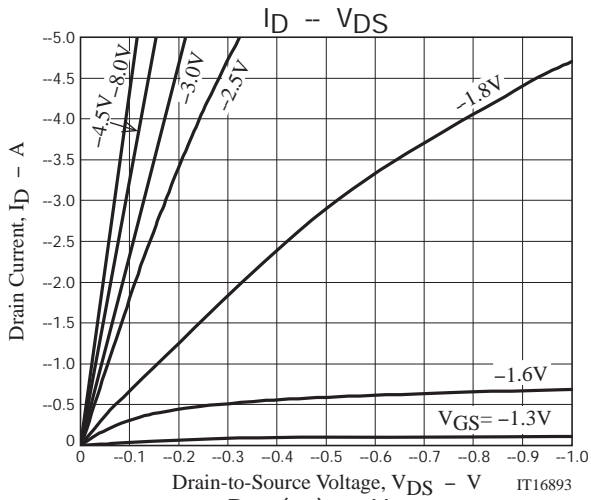
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	I <sub>D</sub> = -1mA, V <sub>GS</sub> =0V	-12			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -12V, V <sub>GS</sub> =0V			-10	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±8V, V <sub>DS</sub> =0V			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> = -6V, I <sub>D</sub> = -1mA	-0.4		-1.3	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> = -6V, I <sub>D</sub> = -2.5A		11		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> = -2.5A, V <sub>GS</sub> = -4.5V		28	37	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> = -1.5A, V <sub>GS</sub> = -2.5V		53	75	mΩ
	R <sub>DS(on)3</sub>	I <sub>D</sub> = -0.5A, V <sub>GS</sub> = -1.8V		133	200	mΩ
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -6V, f=1MHz		1300		pF
Output Capacitance	C <sub>oss</sub>			158		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			143		pF
Turn-ON Delay Time	t <sub>d(on)</sub>		See specified Test Circuit.		16	
Rise Time	t <sub>r</sub>			77		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>			79		ns
Fall Time	t <sub>f</sub>			58		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -6V, V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -5A			12	
Gate-to-Source Charge	Q <sub>gs</sub>			3		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>			2		nC
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> = -5A, V <sub>GS</sub> =0V		-0.9	-1.2	V

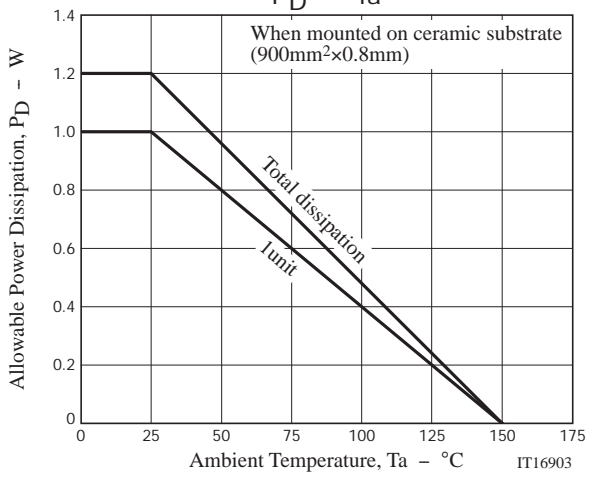
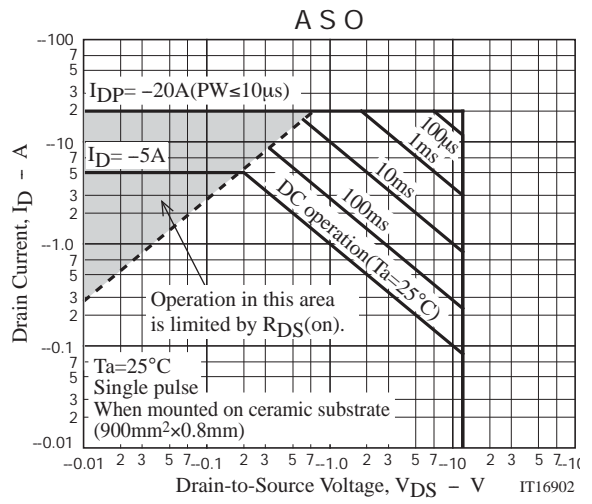
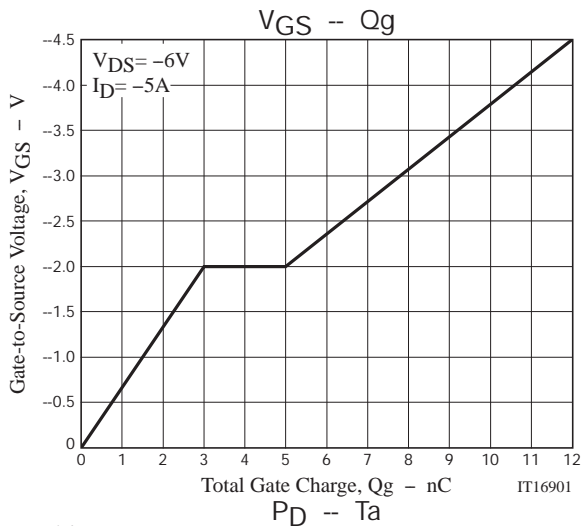
## Switching Time Test Circuit



## Ordering Information

Device	Package	Shipping	memo
EMH2314-TL-H	EMH8	3,000pcs./reel	Pb Free and Halogen Free





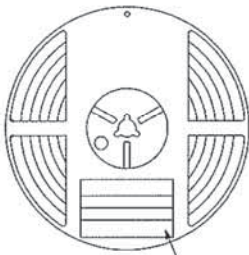
Embossed Taping Specification

EMH2314-TL-H

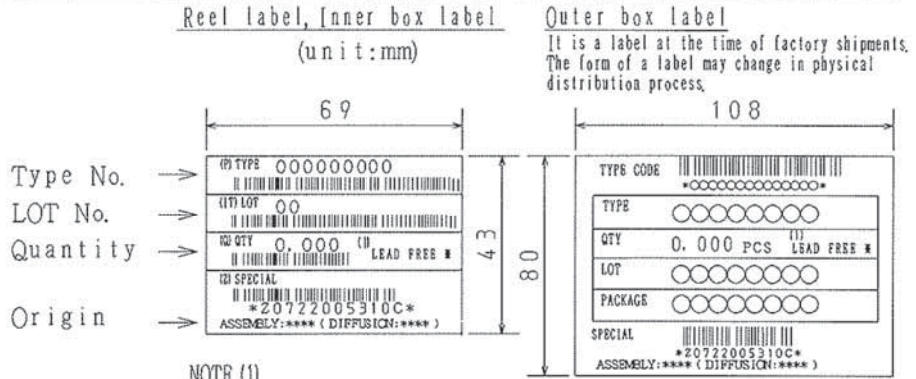
1. Packing Format

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

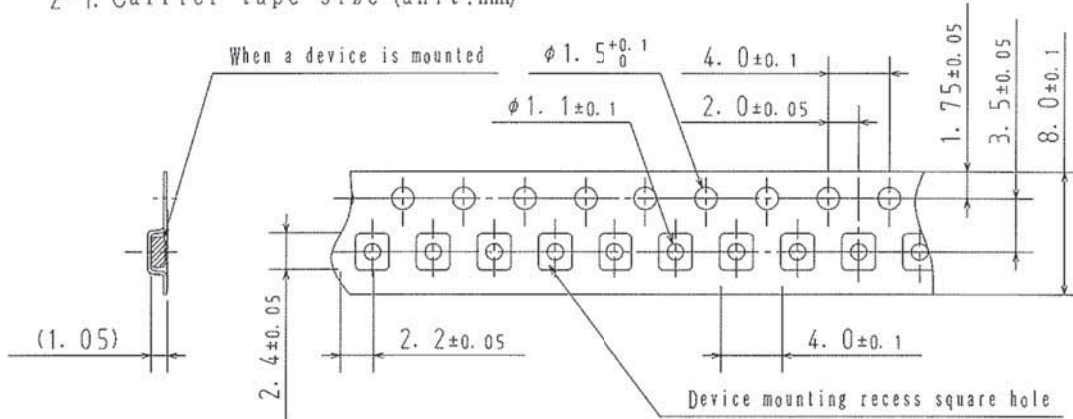


NOTE (1)  
The LEAD FREE \* description shows that the surface treatment of the terminal is lead free.

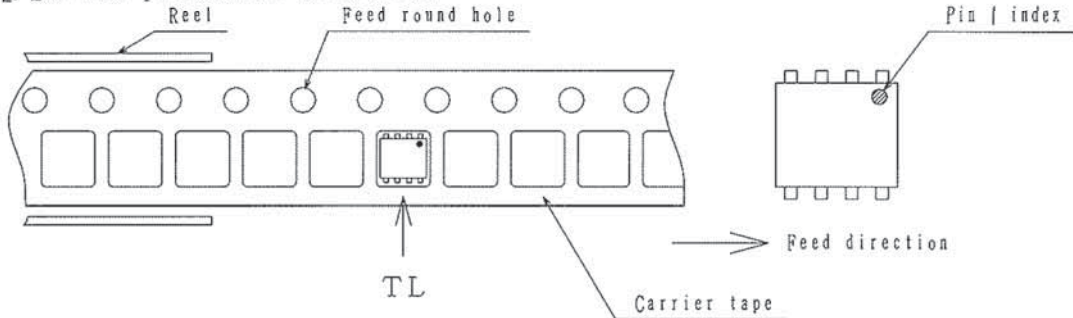
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



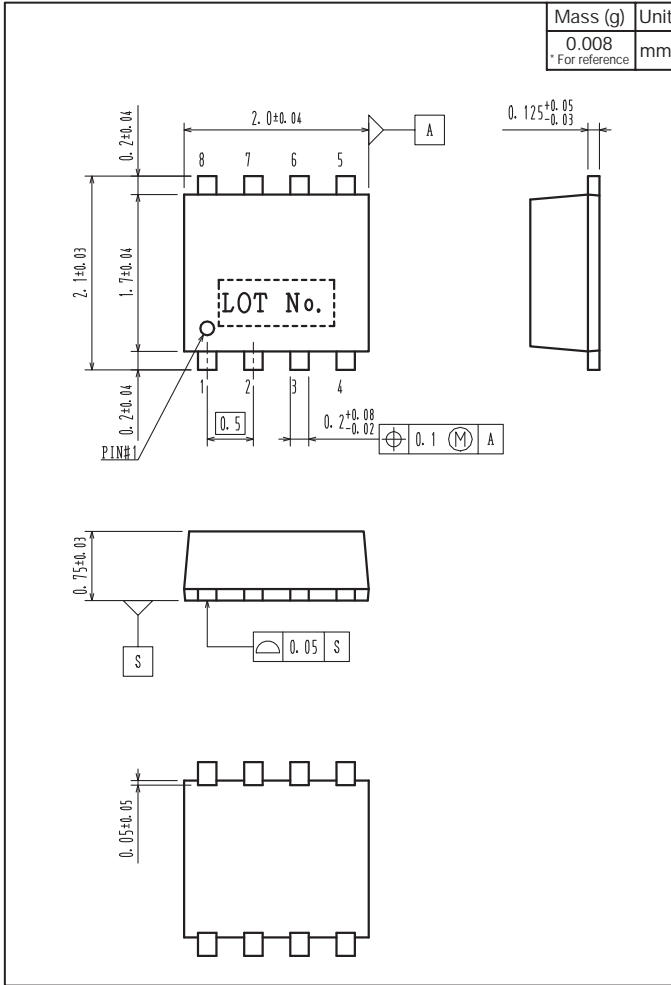
2-2. Device placement direction



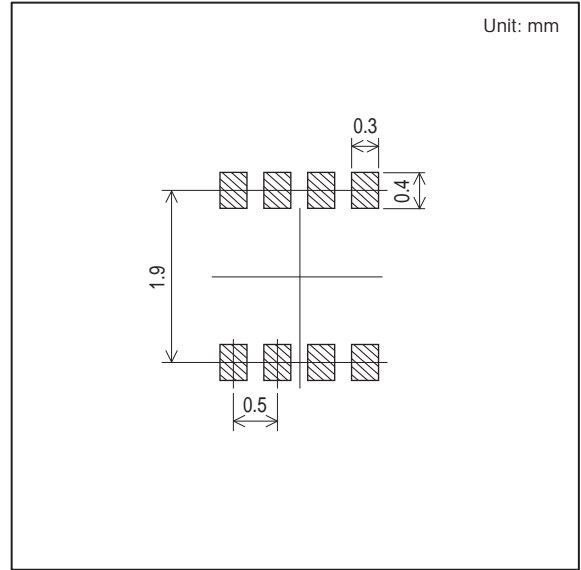
Those with pin | index on the feed hole side.....TL

# EMH2314

## Outline Drawing EMH2314-TL-H



## Land Pattern Example



Note on usage : Since the EMH2314 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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