



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

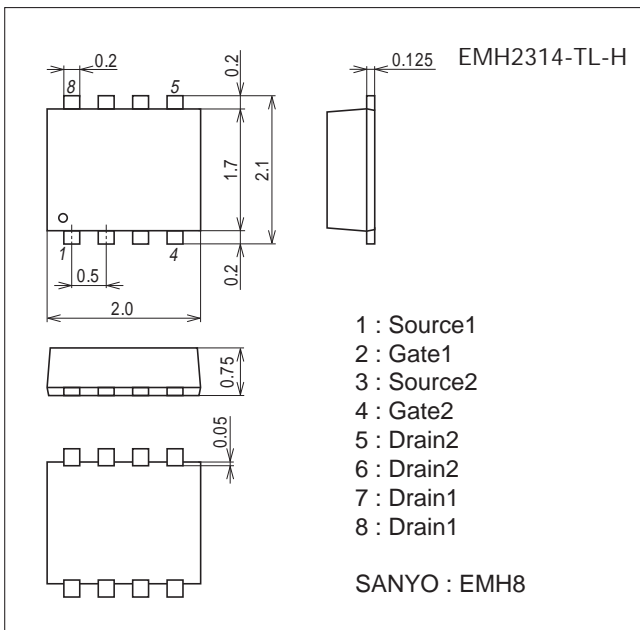
Absolute Maximum Ratings at  $T_a=25^\circ C$

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.)

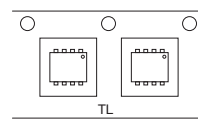
7045-002



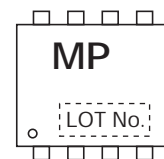
### Product & Package Information

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

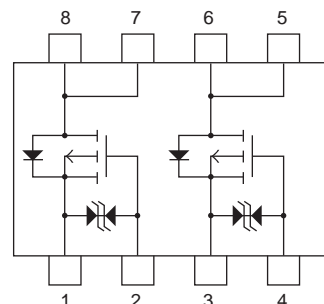
Taping Type : TL



Marking



### Electrical Connection

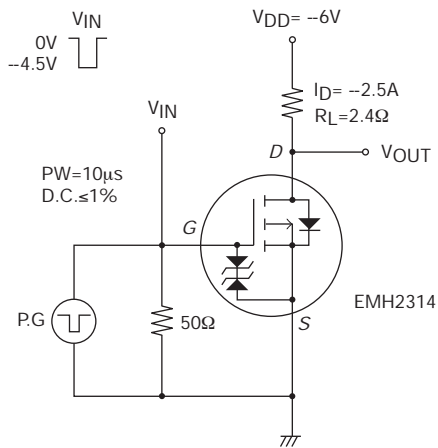


# EMH2314

## Electrical Characteristics at $T_a=25^{\circ}\text{C}$

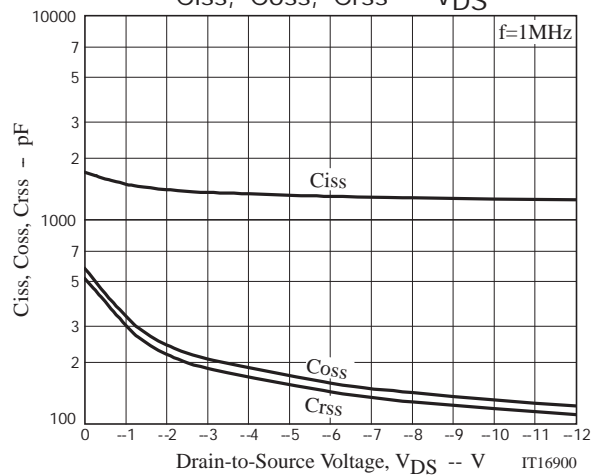
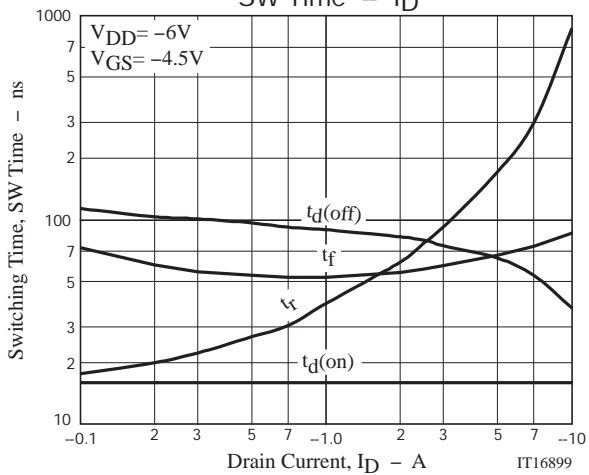
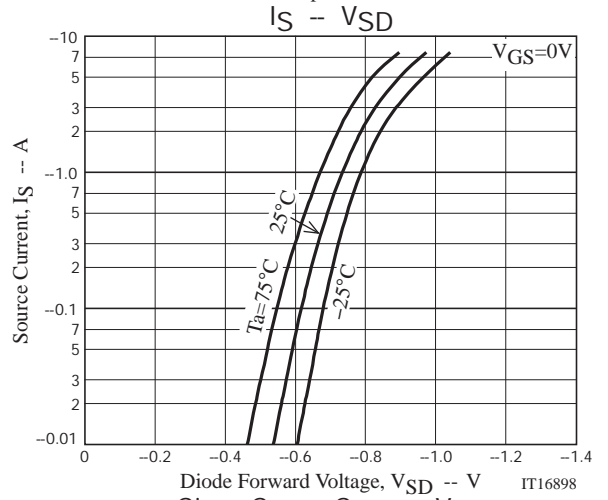
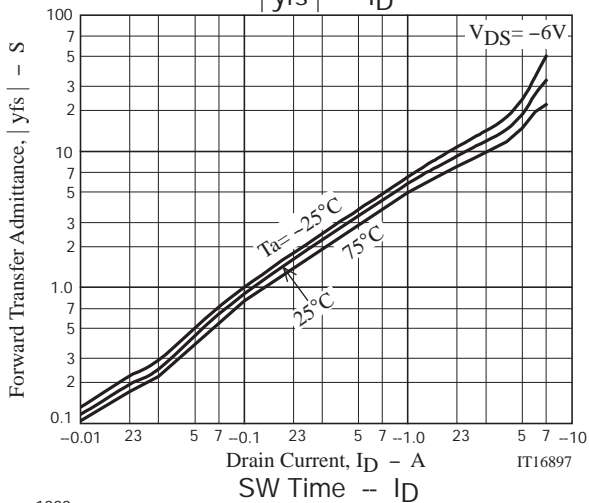
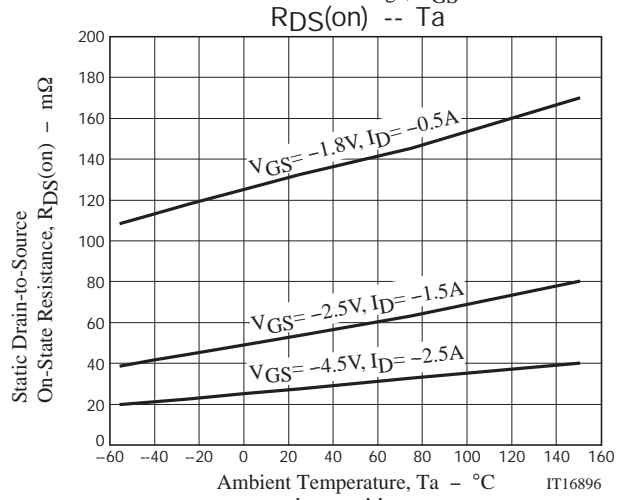
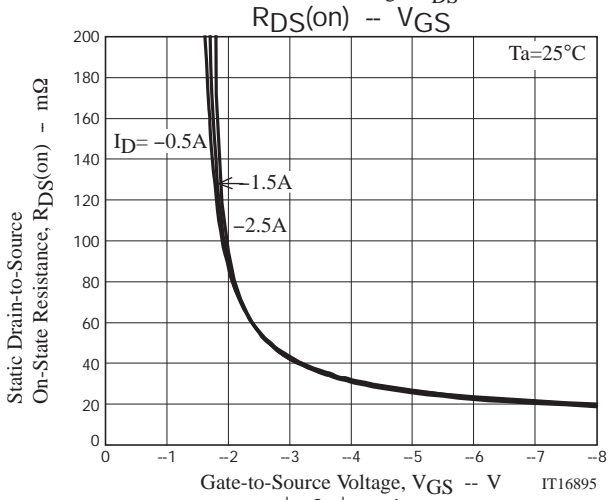
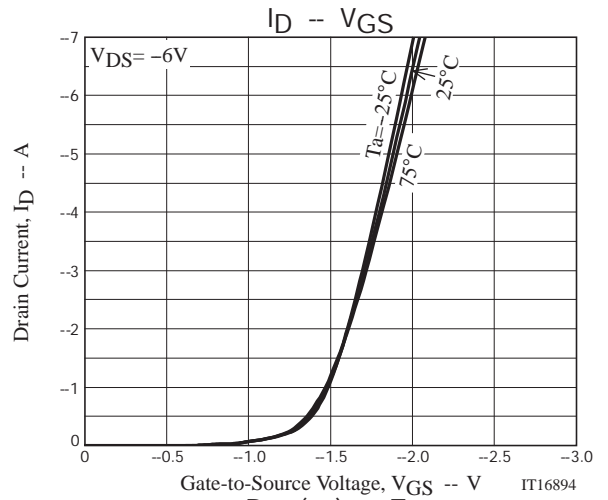
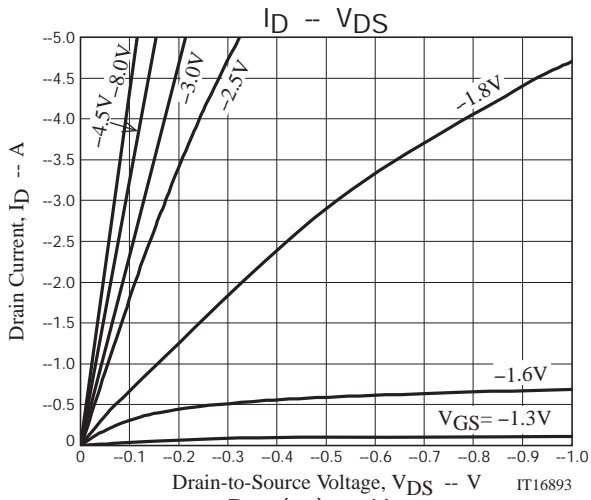
Parameter	Symbol	Conditions	Ratings			Unit
			min.	typ.	max.	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1\text{mA}, V_{GS} = 0\text{V}$	-12			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -12\text{V}, V_{GS} = 0\text{V}$			-10	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 8\text{V}, V_{DS} = 0\text{V}$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -6\text{V}, I_D = -1\text{mA}$	-0.4		-1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -6\text{V}, I_D = -2.5\text{A}$		11		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -2.5\text{A}, V_{GS} = -4.5\text{V}$		28	37	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D = -1.5\text{A}, V_{GS} = -2.5\text{V}$		53	75	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D = -0.5\text{A}, V_{GS} = -1.8\text{V}$		133	200	$\text{m}\Omega$
Input Capacitance	$C_{iss}$			1300		$\text{pF}$
Output Capacitance	$C_{oss}$	$V_{DS} = -6\text{V}, f = 1\text{MHz}$		158		$\text{pF}$
Reverse Transfer Capacitance	$C_{rss}$			143		$\text{pF}$
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		16		ns
Rise Time	$t_r$			77		ns
Turn-OFF Delay Time	$t_{d(off)}$			79		ns
Fall Time	$t_f$			58		ns
Total Gate Charge	$Q_g$				12	
Gate-to-Source Charge	$Q_{gs}$	$V_{DS} = -6\text{V}, V_{GS} = -4.5\text{V}, I_D = -5\text{A}$		3n		C
Gate-to-Drain "Miller" Charge	$Q_{gd}$			2n		C
Diode Forward Voltage	$V_{SD}$	$I_S = -5\text{A}, V_{GS} = 0\text{V}$		-0.9	-1.2	V

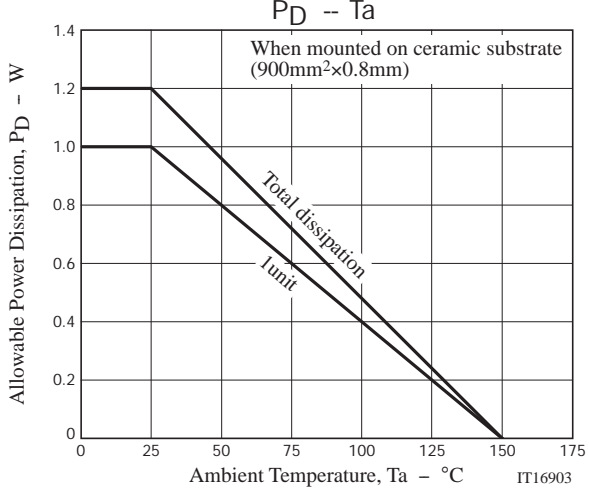
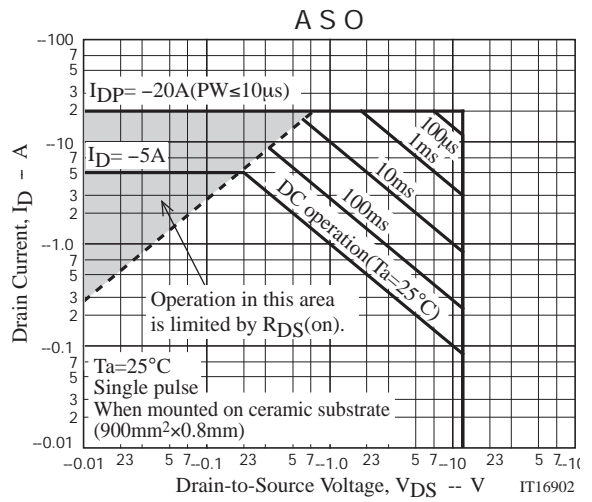
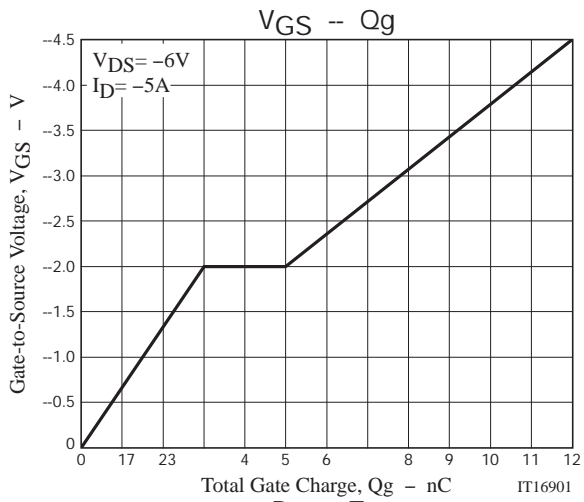
## Switching Time Test Circuit



## Ordering Information

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



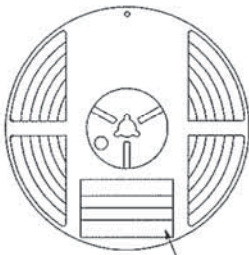


Embossed Taping Specification  
EMH2314-TL-H

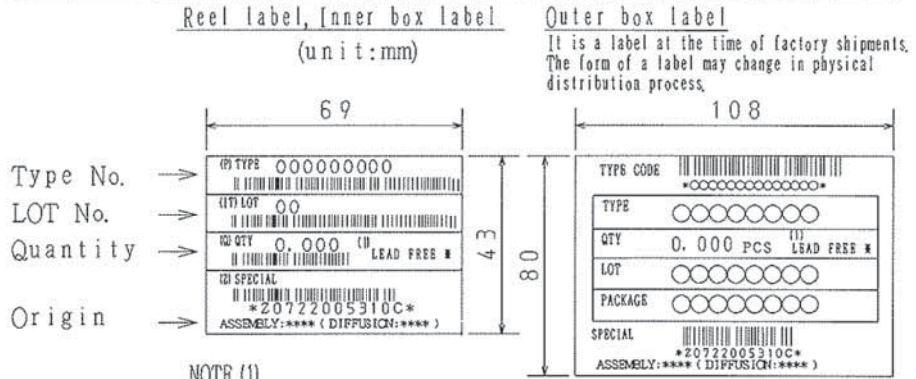
1. Packing Format

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



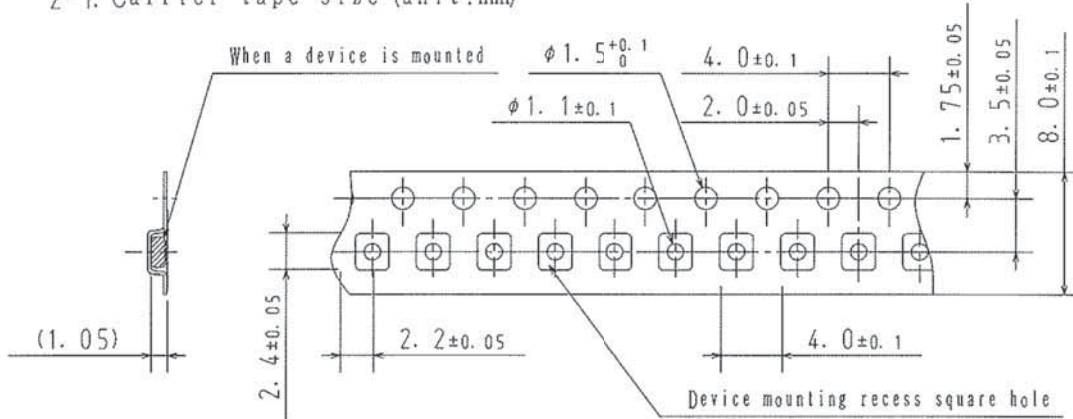
NOTE (1)

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

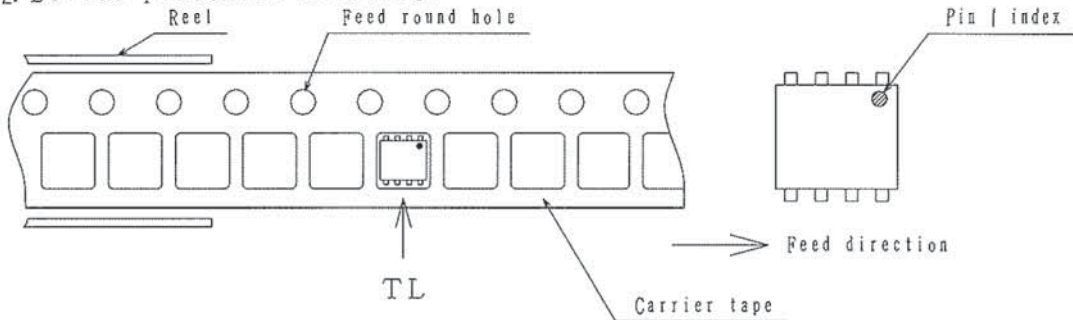
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



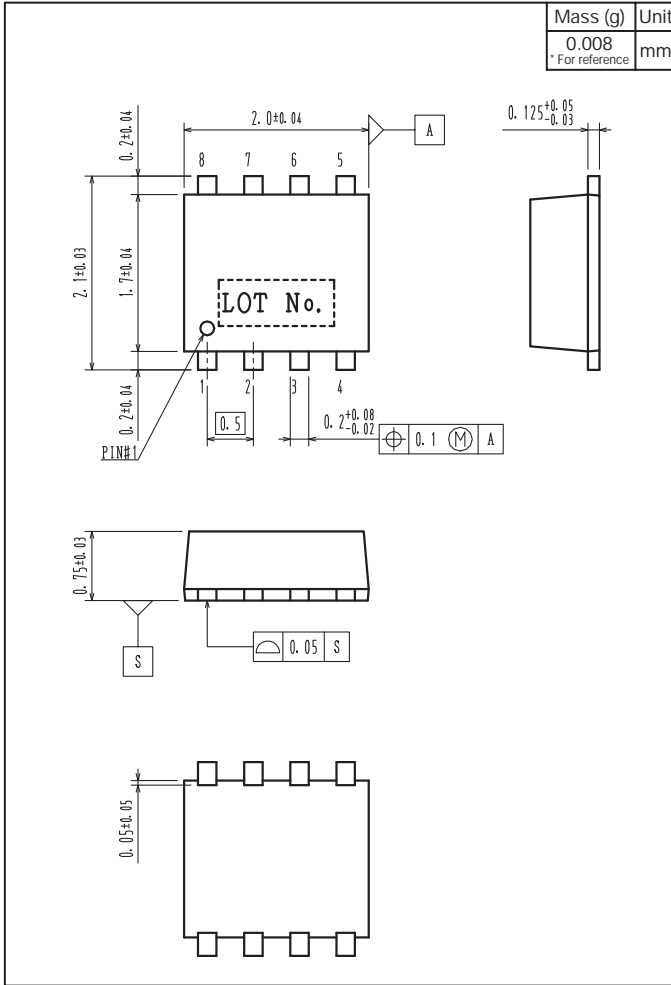
2-2. Device placement direction



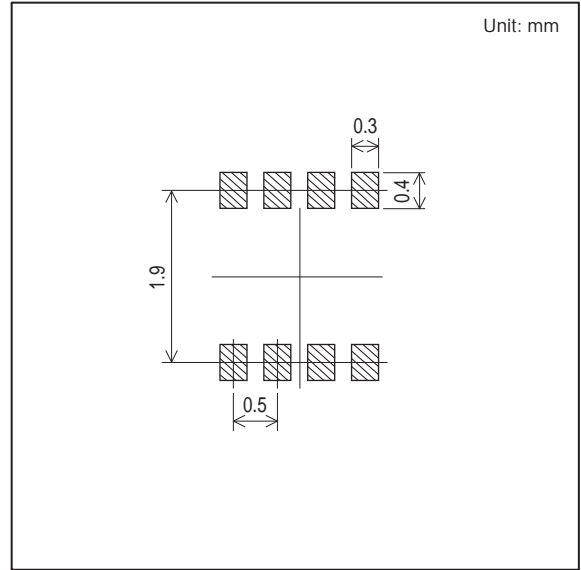
Those with pin | index on the feed hole side.....TL

# 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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