



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

P-Channel Silicon MOSFET

EMH1303 — General-Purpose Switching Device Applications

Features

- Low ON-resistance
- 1.8V drive
- Protection diode in

Specifications

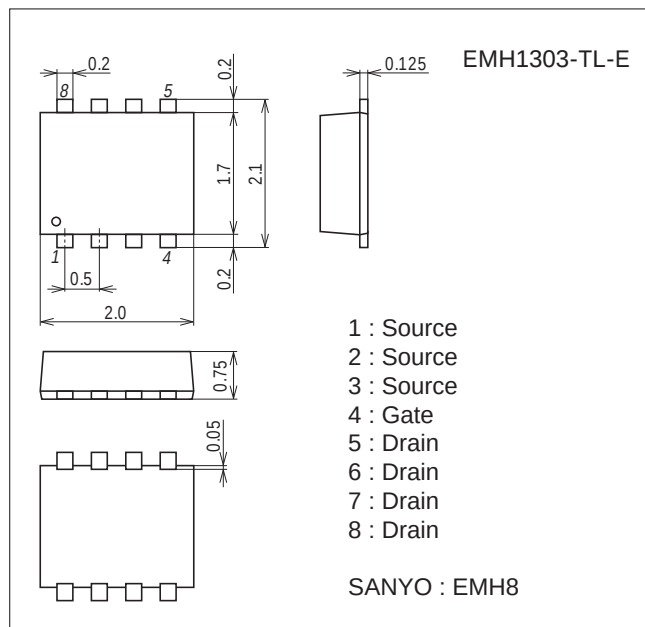
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		-12	V
Gate-to-Source Voltage	V_{GS}		±10	V
Drain Current (DC)	I_D		-7	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	-28	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (1200mm ² ×0.8mm)	1.5	W
Channel Temperature	T_{ch}		150	°C
Storage Temperature	T_{stg}		-55 to +150	°C

Package Dimensions

unit : mm (typ)

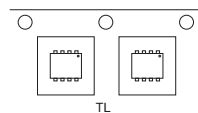
7045-001



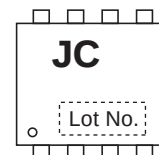
Product & Package Information

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

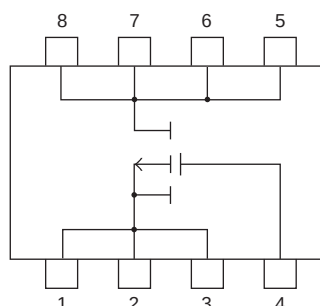
Taping Type : TL



Marking



Electrical Connection

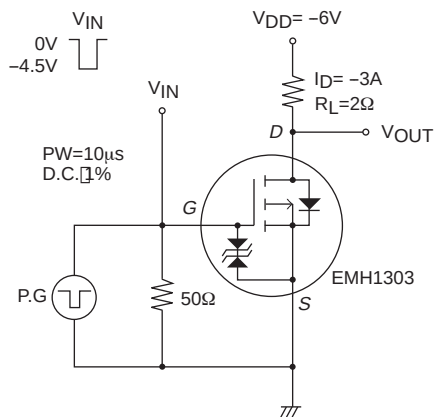


EMH1303

Electrical Characteristics at Ta=25°C

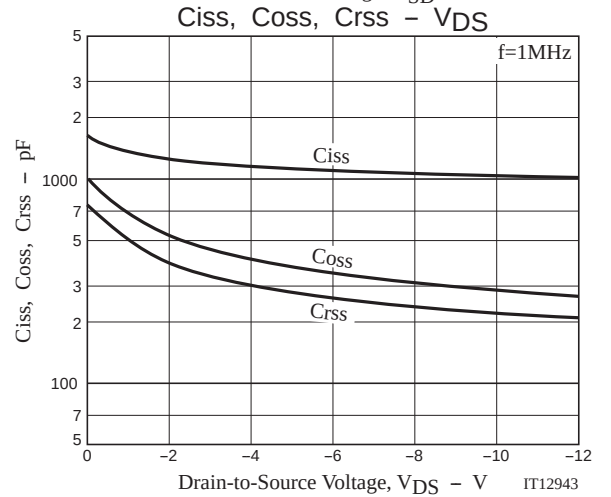
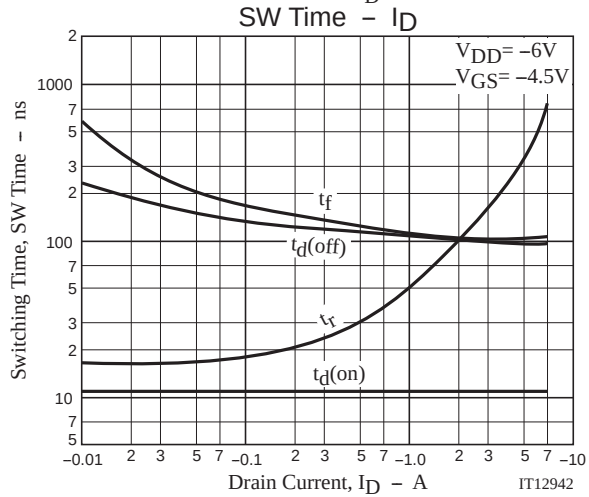
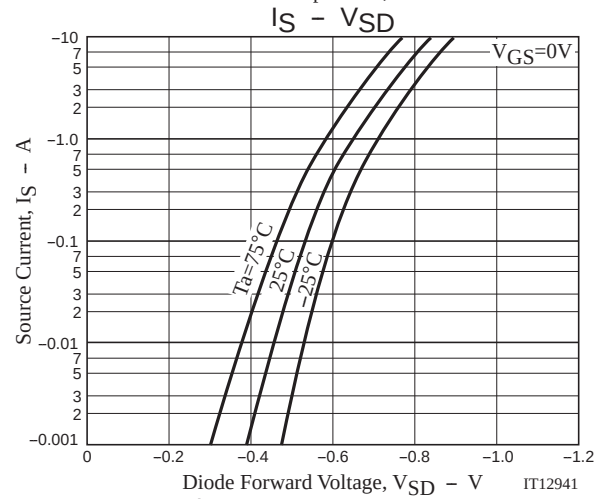
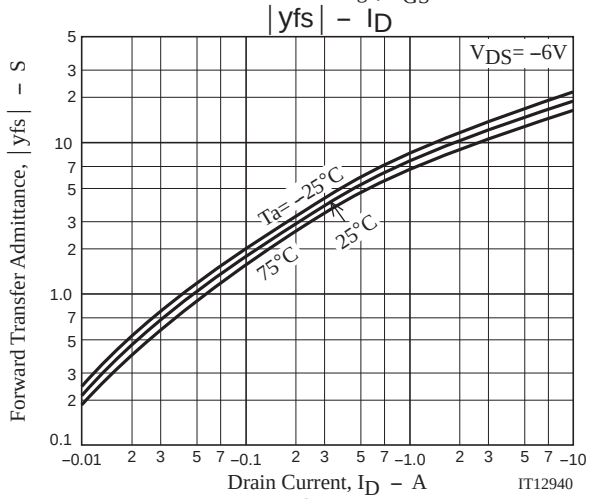
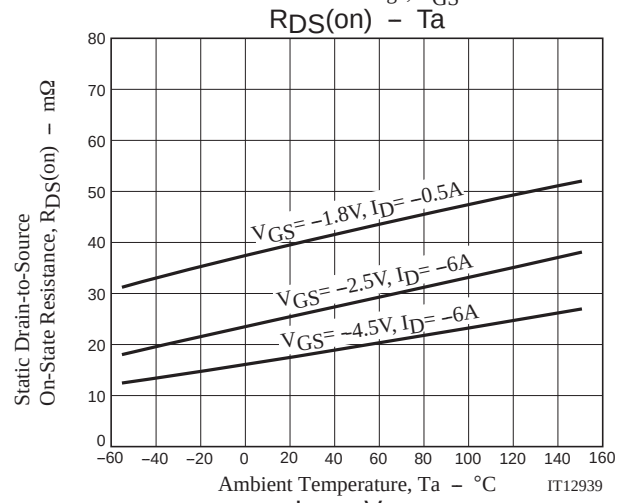
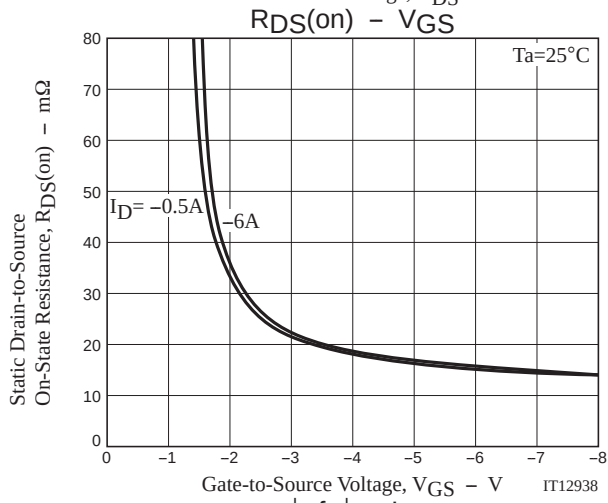
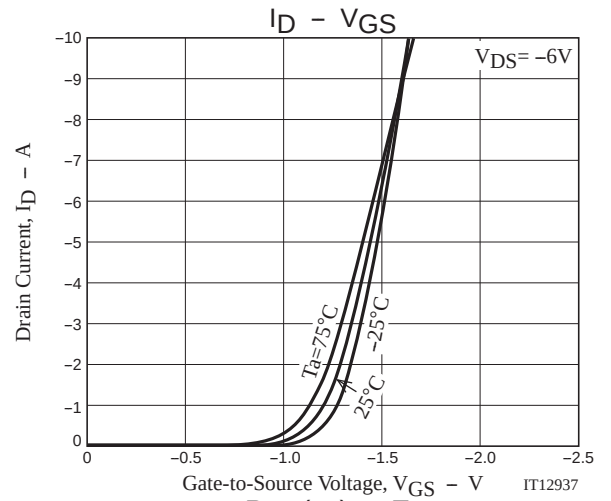
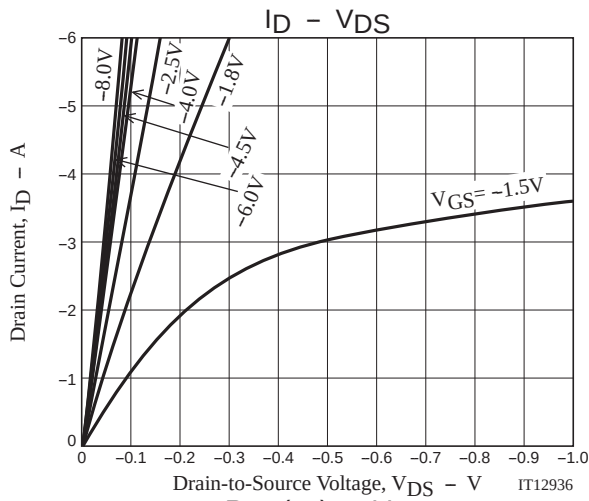
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1mA, V_{GS} = 0V$	-12			V
Zero-Gate Voltage Drain Current	I_{DSS1}	$V_{DS} = -8V, V_{GS} = 0V$			-1	μA
	I_{DSS2}	$V_{DS} = -12V, V_{GS} = 0V$			-10	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 8V, V_{DS} = 0V$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -6V, I_D = -1mA$	-0.4		-1.2	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -6V, I_D = -3A$	7.2	12		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -6A, V_{GS} = -4.5V$		18	23	$m\Omega$
	$R_{DS(on)2}$	$I_D = -6A, V_{GS} = -2.5V$		27	36	$m\Omega$
	$R_{DS(on)3}$	$I_D = -0.5A, V_{GS} = -1.8V$		40	65	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS} = -6V, f = 1MHz$		1100		pF
Output Capacitance	C_{oss}			350		pF
Reverse Transfer Capacitance	C_{rss}			265		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		11		ns
Rise Time	t_r			165		ns
Turn-OFF Delay Time	$t_{d(off)}$			100		ns
Fall Time	t_f			105		ns
Total Gate Charge	Q_g	$V_{DS} = -6V, V_{GS} = -4.5V, I_D = -7A$		12.0		nC
Gate-to-Source Charge	Q_{gs}			1.9		nC
Gate-to-Drain "Miller" Charge	Q_{gd}			2.9		nC
Diode Forward Voltage	V_{SD}	$I_S = -7A, V_{GS} = 0V$		-0.8	-1.2	V

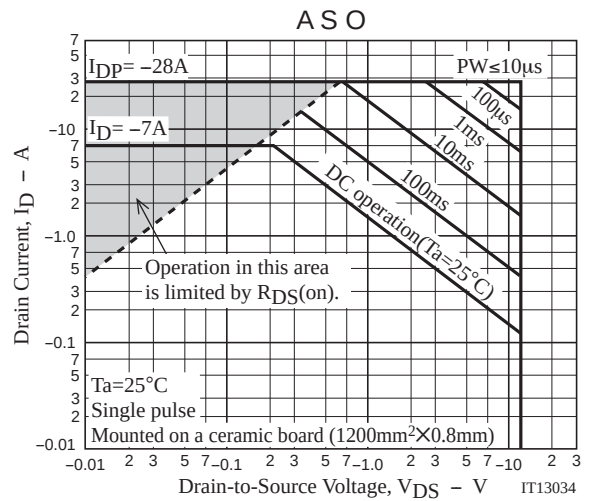
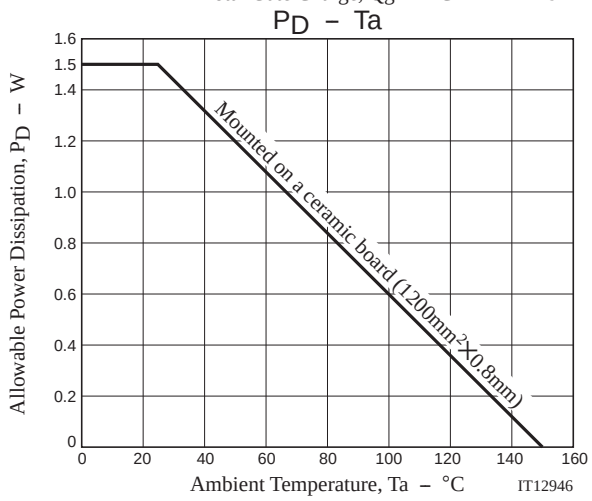
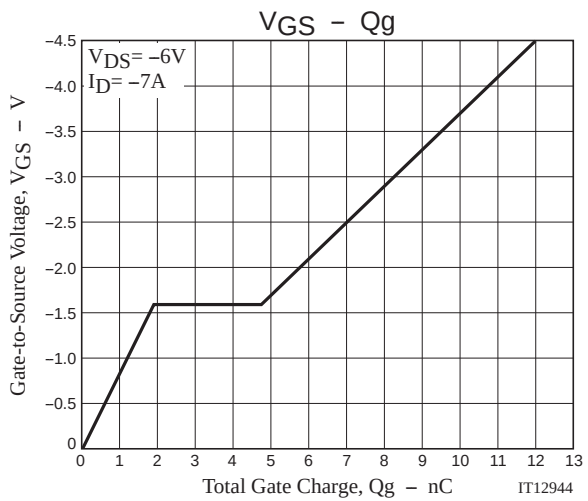
Switching Time Test Circuit



Ordering Information

Device	Package	Shipping	memo
EMH1303-TL-E	EMH8	3,000pcs./reel	Pb Free





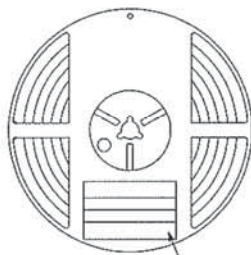
Embossed Taping Specification

EMH1303-TL-E

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

Type No.
LOT No.
Quantity
Origin

Reel label, Inner box label
(unit:mm)

TYPE	0000000000
LOT	00
QTY	0,000
SPECIAL	LEAD FREE *
ASSEMBLY	***** (DIFFUSION:****)

Outer box label

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

TYPE CODE	*****
TYPE	*****
QTY	0,000 PCS
LOT	*****
PACKAGE	*****
SPECIAL	*****
ASSEMBLY	***** (DIFFUSION:****)

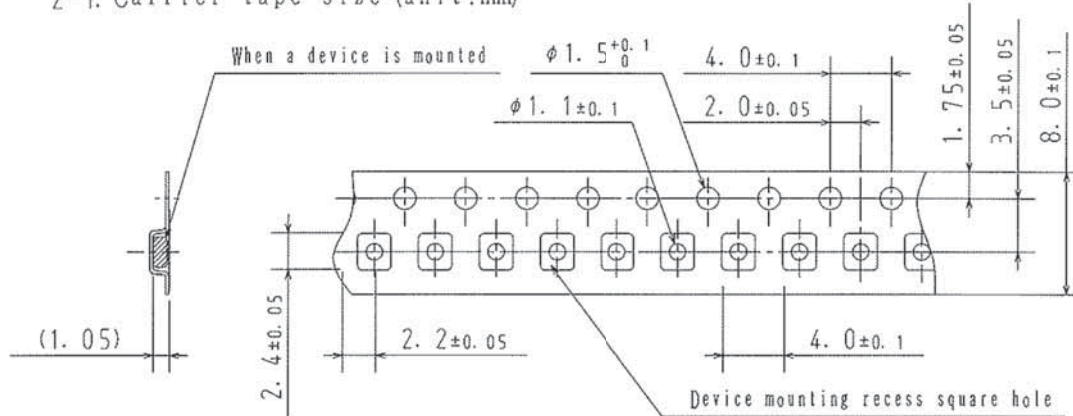
NOTE (1)

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

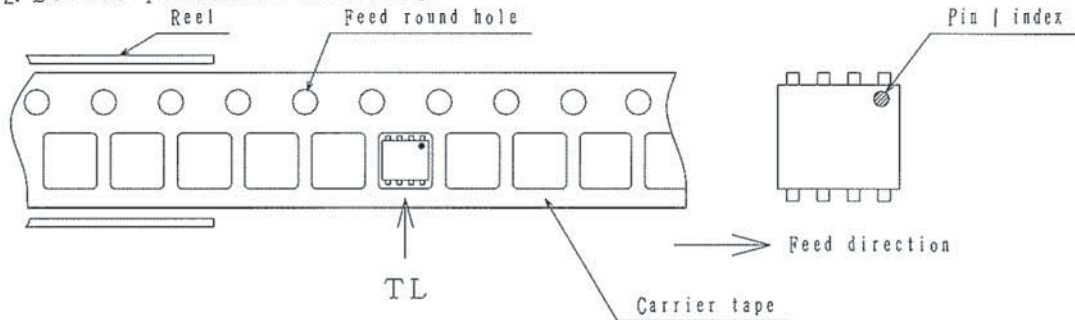
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



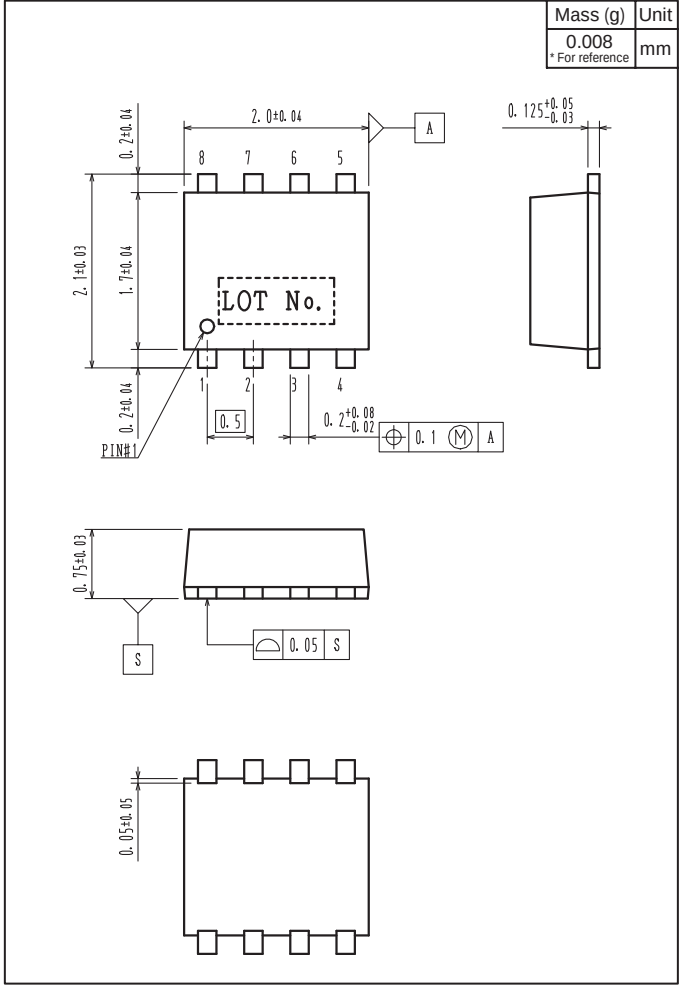
2-2. Device placement direction



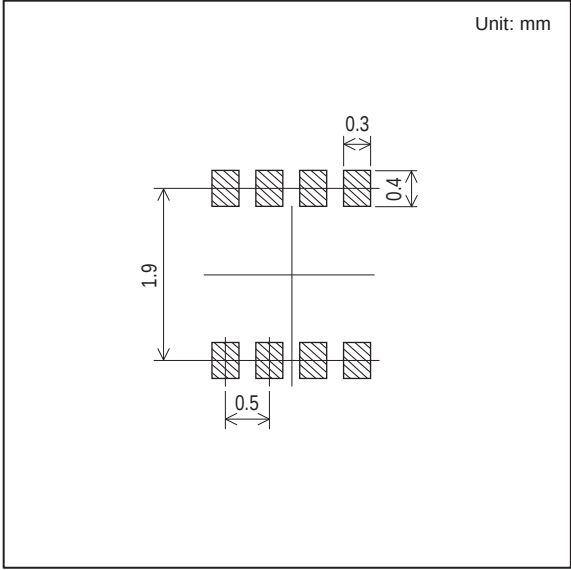
Those with pin 1 index on the feed hole side.....TL

EMH1303

Outline Drawing
EMH1303-TL-E



Land Pattern Example



Note on usage : Since the EMH1303 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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