



# EMH1303

## P-Channel Power MOSFET -12V, -7A, 23mΩ, Single EMH8

ON Semiconductor®

<http://onsemi.com>

### Features

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

### Specifications

Absolute Maximum Ratings at Ta=25°C

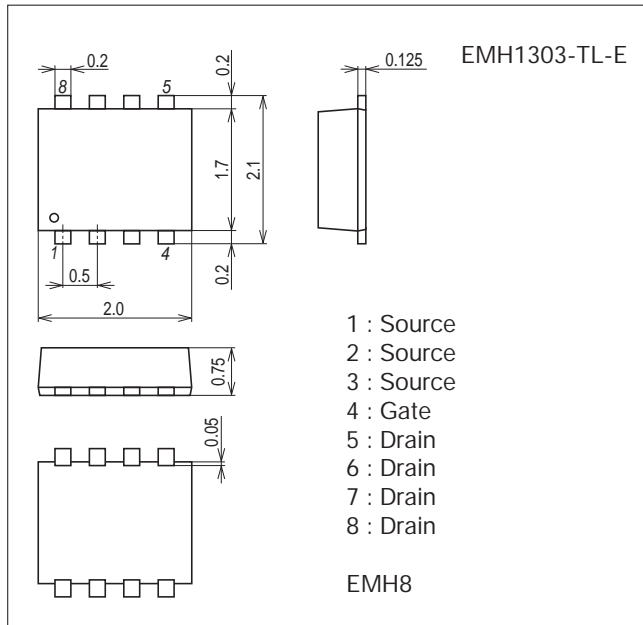
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		-12	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±10	V
Drain Current (DC)	I <sub>D</sub>		-7	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-28	A
Allowable Power Dissipation	P <sub>D</sub>	Mounted on a ceramic board (1200mm <sup>2</sup> ×0.8mm)	1.5	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

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)

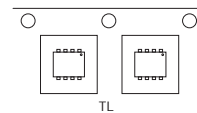
7045-001



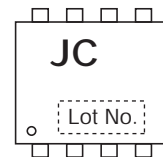
### Product & Package Information

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

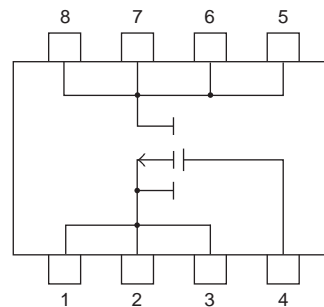
### Taping Type : TL



### Marking



### Electrical Connection

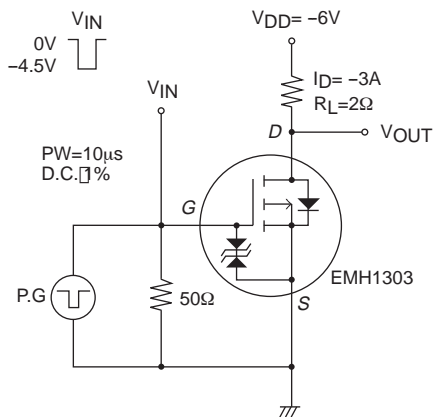


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## Electrical Characteristics at Ta=25°C

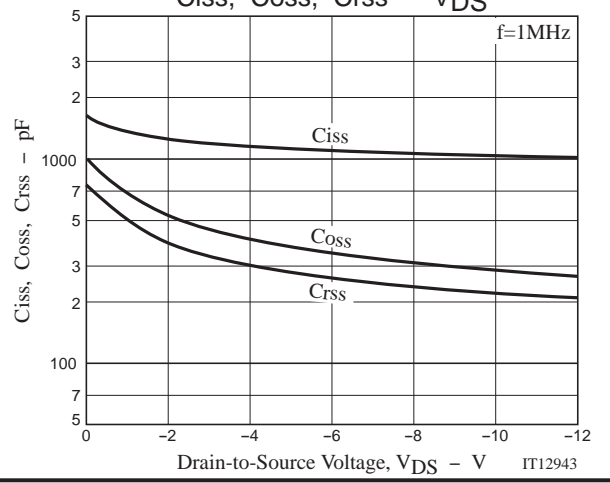
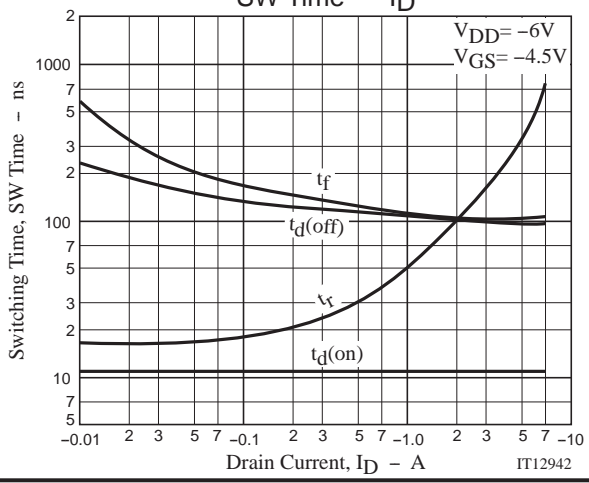
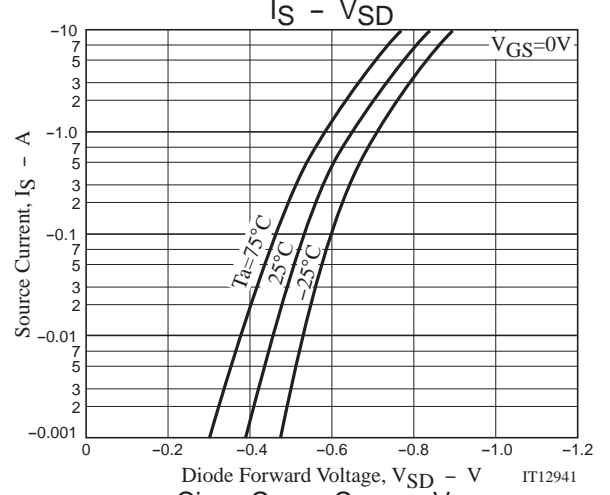
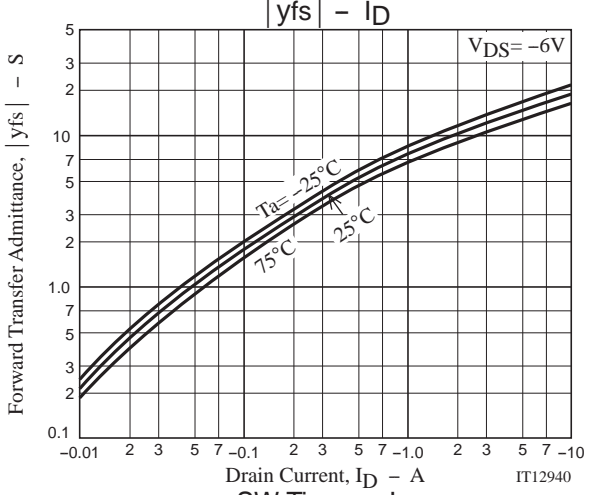
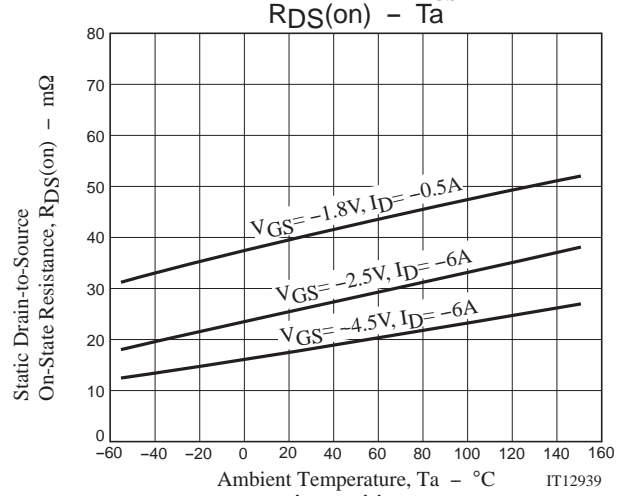
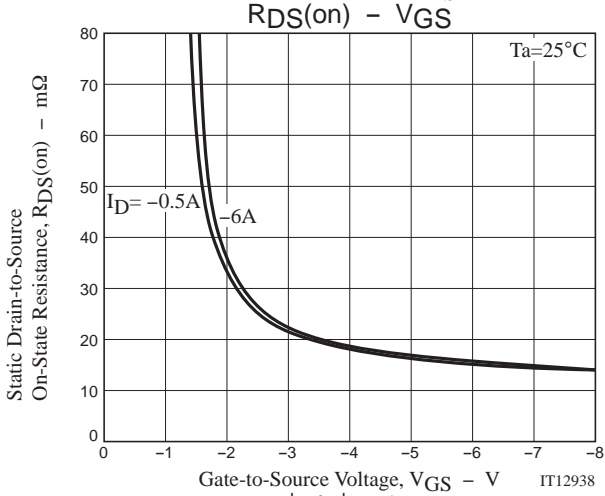
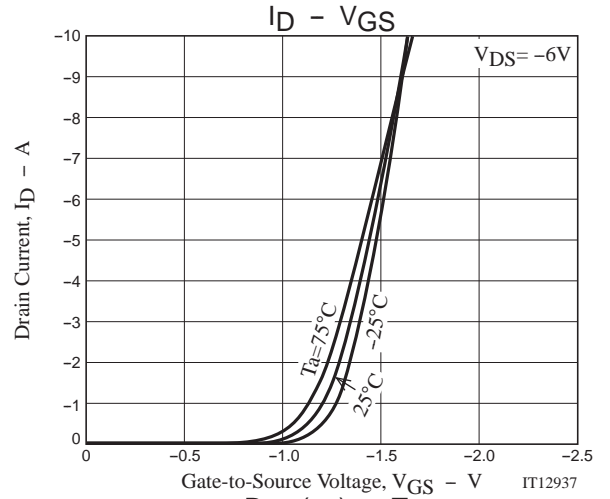
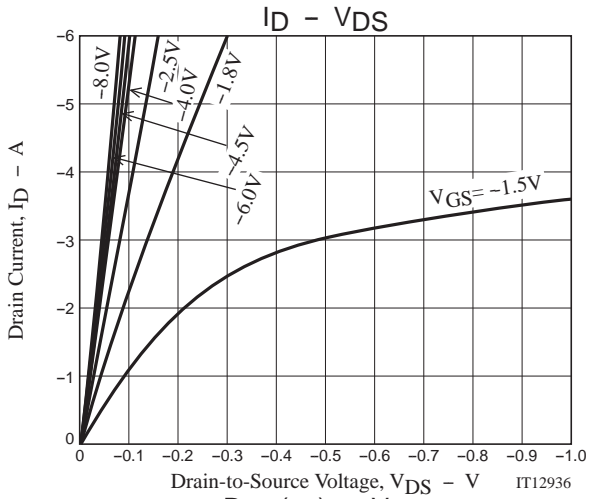
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=-1mA, VGS=0V	-12			V
Zero-Gate Voltage Drain Current	IDSS1	VDS=-8V, VGS=0V			-1	μA
	IDSS2	VDS=-12V, VGS=0V			-10	μA
Gate-to-Source Leakage Current	IGSS	VGS=±8V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=-6V, ID=-1mA	-0.4		-1.2	V
Forward Transfer Admittance	yfs	VDS=-6V, ID=-3A	7.2	12		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=-6A, VGS=-4.5V		18	23	mΩ
	RDS(on)2	ID=-6A, VGS=-2.5V		27	36	mΩ
	RDS(on)3	ID=-0.5A, VGS=-1.8V		40	65	mΩ
Input Capacitance	Ciss	VDS=-6V, f=1MHz		1100		pF
Output Capacitance	Coss			350		pF
Reverse Transfer Capacitance	Crss			265		pF
Turn-ON Delay Time	t <sub>d(on)</sub>			11		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit.		165		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>			100		ns
Fall Time	t <sub>f</sub>			105		ns
Total Gate Charge	Qg			12.0		nC
Gate-to-Source Charge	Qgs	VDS=-6V, VGS=-4.5V, ID=-7A		1.9		nC
Gate-to-Drain "Miller" Charge	Qgd			2.9		nC
Diode Forward Voltage	VSD		IS=-7A, VGS=0V		-0.8	-1.2

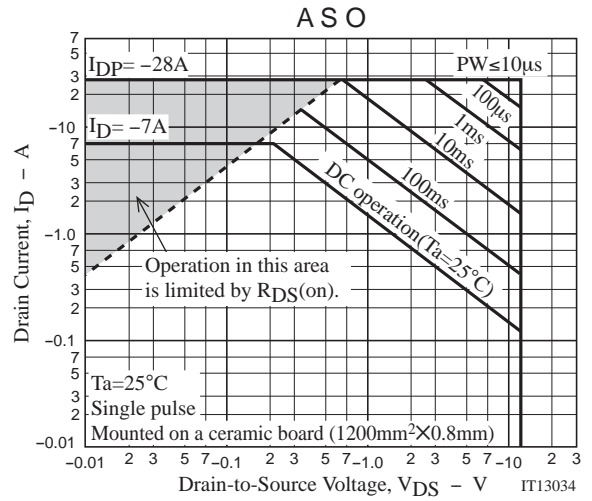
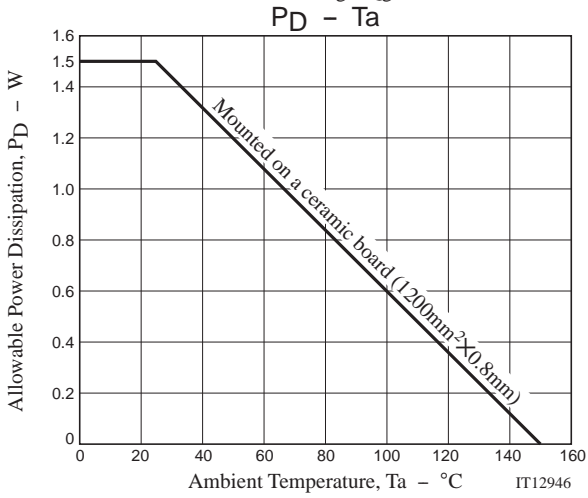
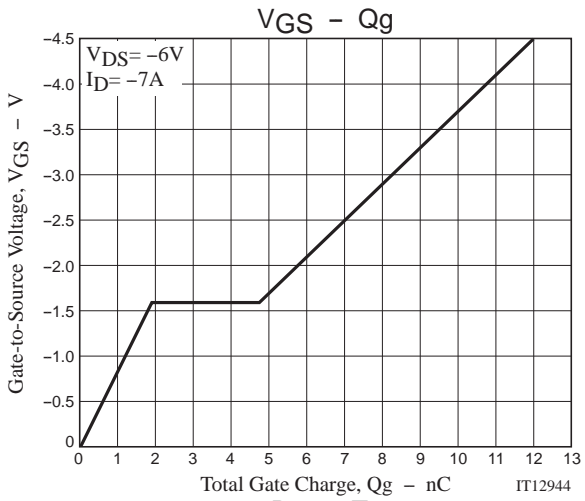
## Switching Time Test Circuit



## Ordering Information

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





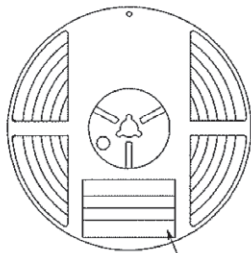
Embossed Taping Specification

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

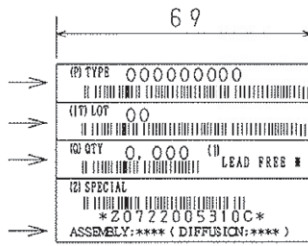
Packing method



Reel label

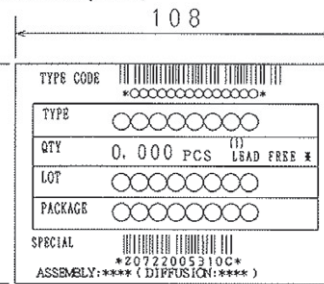
Type No. →  
 LOT No. →  
 Quantity →  
 Origin →

Reel label, Inner box label (unit:mm)



Outer box label

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



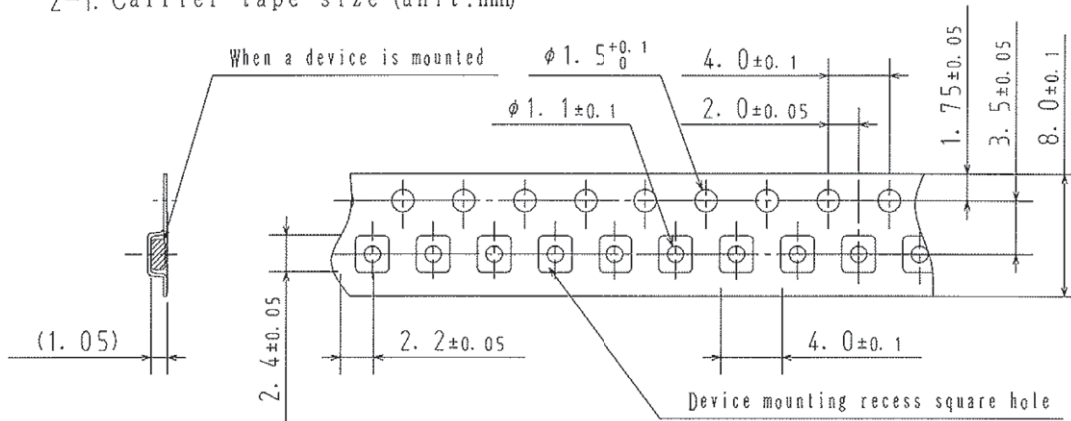
NOTE (1)

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

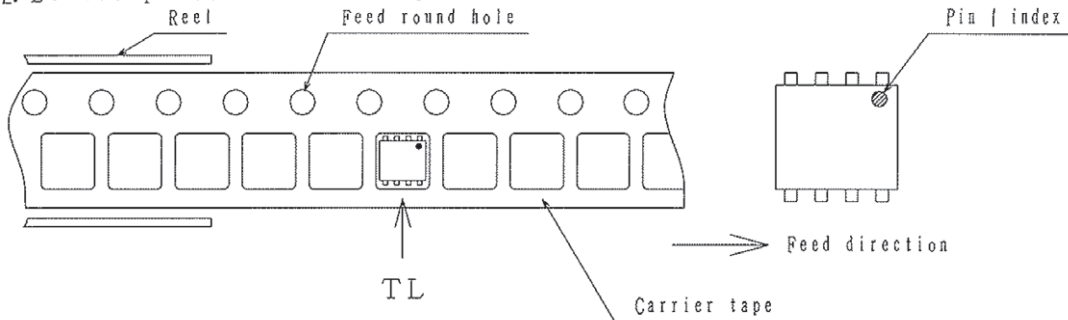
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction



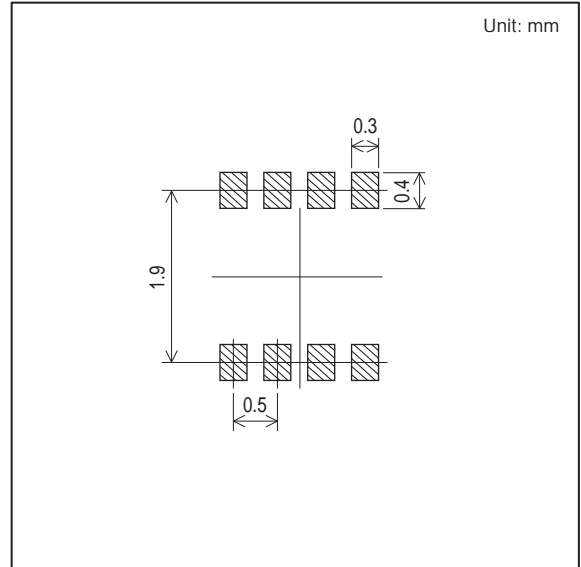
Those with pin 1 index on the feed hole side.....TL

# 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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