



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## ECH8652 — P-Channel Silicon MOSFET General-Purpose Switching Device Applications

### Features

- Low ON-resistance
- 1.8V drive
- Composite type, facilitating high-density mounting
- Halogen free compliance
- Protection diode in

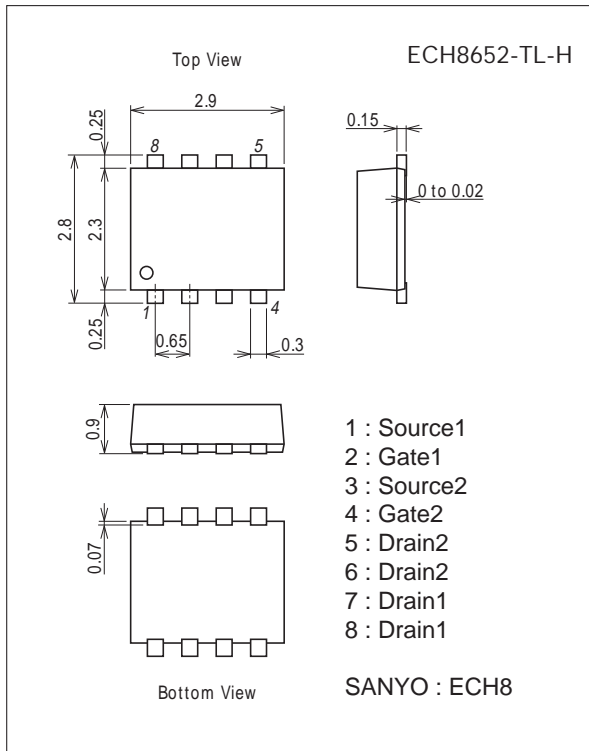
### Specifications

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>		-6	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-40	A
Allowable Power Dissipation	P <sub>D</sub>	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm) 1unit	1.3	W
Total Power Dissipation	P <sub>T</sub>	When mounted on ceramic substrate (900mm <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

### Package Dimensions

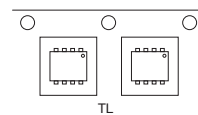
unit : mm (typ)  
7011A-001



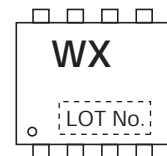
### Product & Package Information

- Package : ECH8
- JEITA, JEDEC : -
- Minimum Packing Quantity : 3,000 pcs./reel

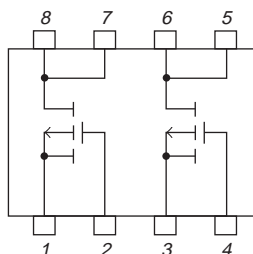
### Packing Type : TL



### Marking



### Electrical Connection

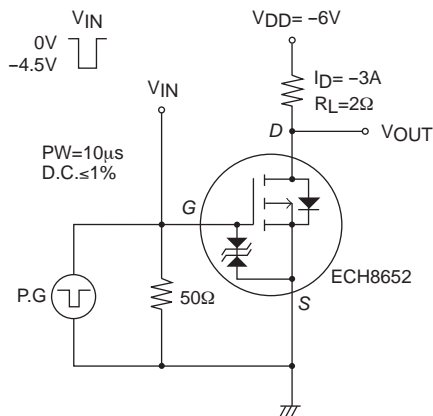


# ECH8652

## Electrical Characteristics at Ta=25°C

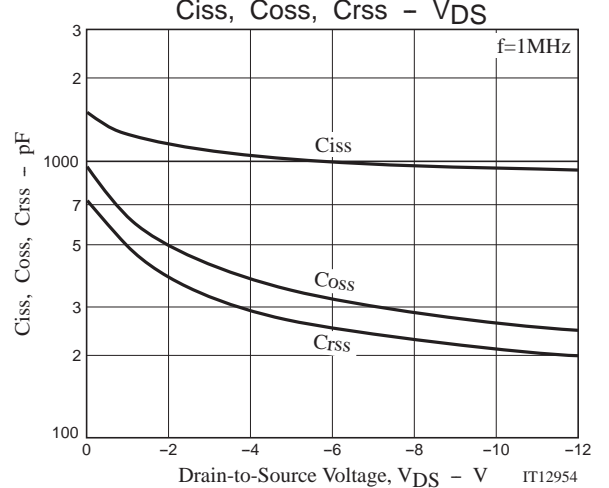
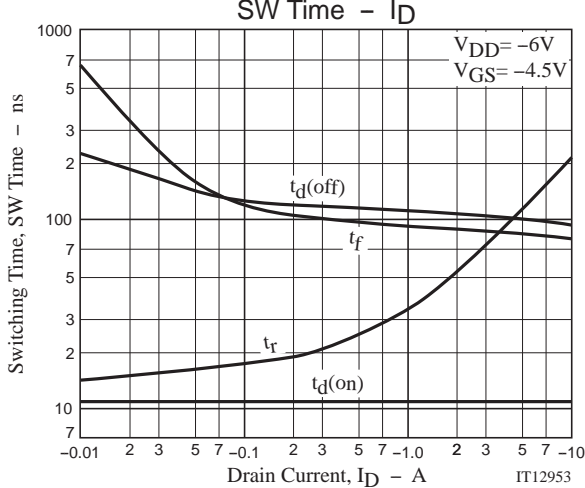
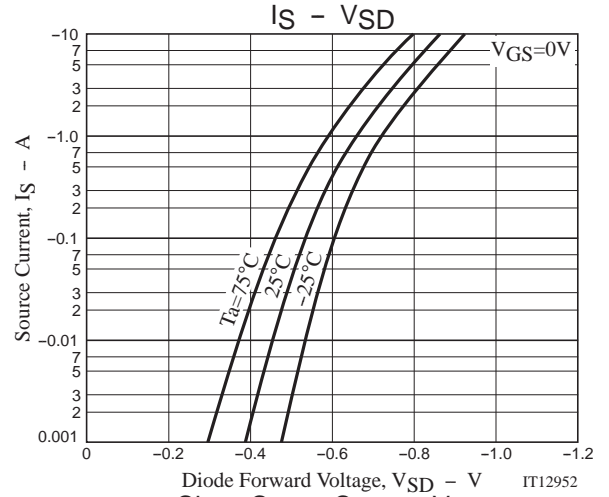
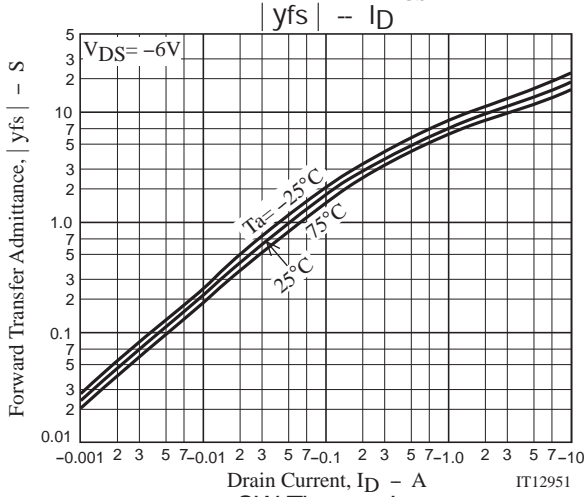
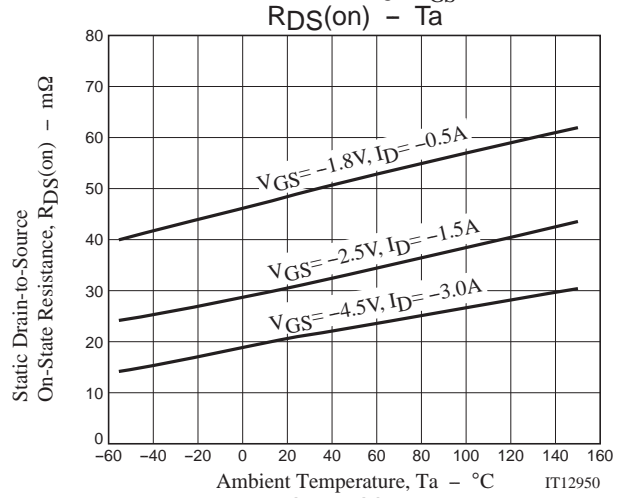
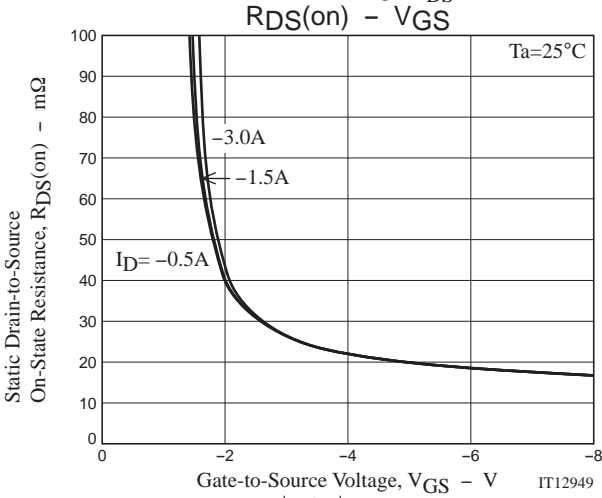
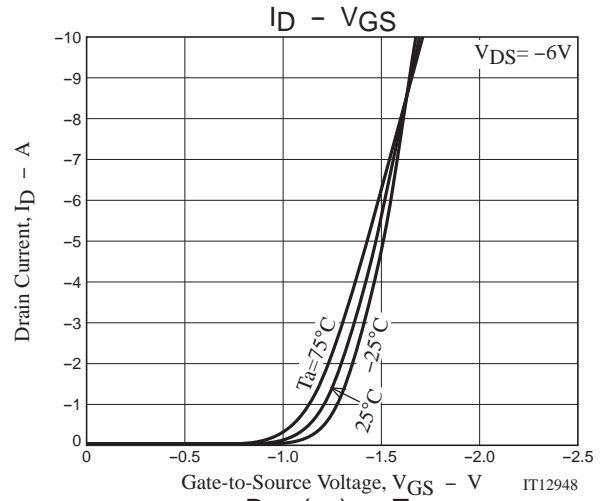
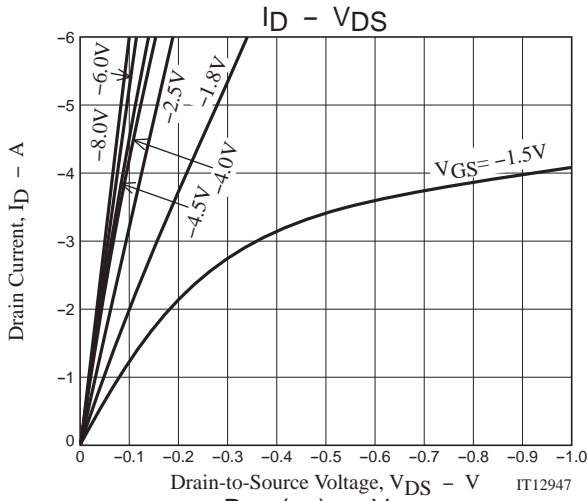
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=-1mA, VGS=0V	-12			V
Zero-Gate Voltage Drain Current	IDSS1	VDS=-8V, VGS=0V			-1	μA
	IDSS2	VDS=-12V, VGS=0V			-10	μA
Gate-to-Source Leakage Current	IGSS	VGS=±8V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=-6V, ID=-1mA	-0.4		-1.4	V
Forward Transfer Admittance	yfs	VDS=-6V, ID=-3A	6.6	11		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=-3A, VGS=-4.5V		21	28	mΩ
	RDS(on)2	ID=-1.5A, VGS=-2.5V		31	45	mΩ
	RDS(on)3	ID=-0.5A, VGS=-1.8V		49	78	mΩ
Input Capacitance	Ciss	VDS=-6V, f=1MHz		1000		pF
Output Capacitance	Coss			320		pF
Reverse Transfer Capacitance	Crss			250		pF
Turn-ON Delay Time	t <sub>d(on)</sub>			11		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit.		72		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>			105		ns
Fall Time	t <sub>f</sub>			87		ns
Total Gate Charge	Qg			11		nC
Gate-to-Source Charge	Qgs	VDS=-6V, VGS=-4.5V, ID=-6A		1.5		nC
Gate-to-Drain "Miller" Charge	Qgd			2.9		nC
Diode Forward Voltage	VSD		IS=-6A, VGS=0V		-0.81	-1.2

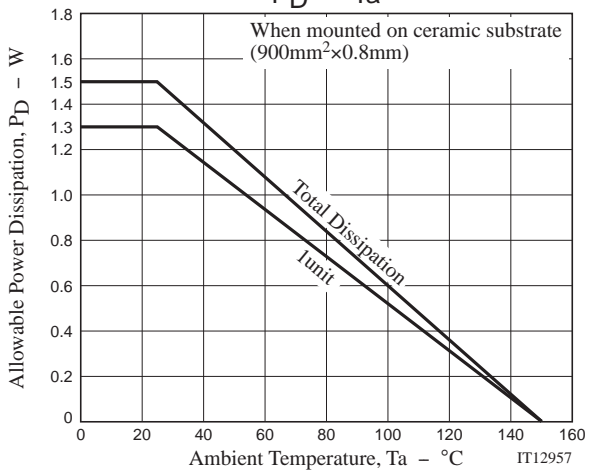
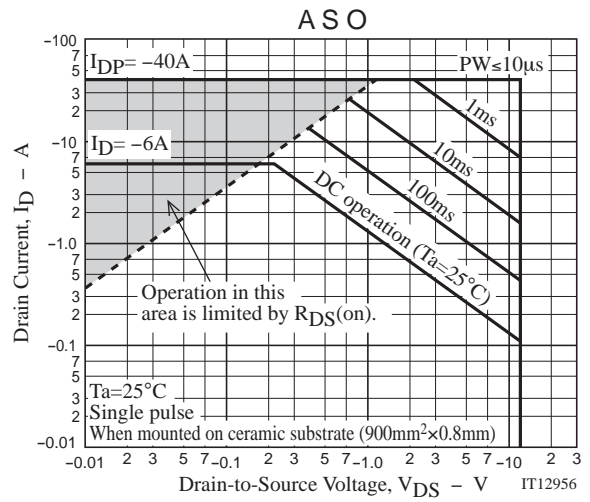
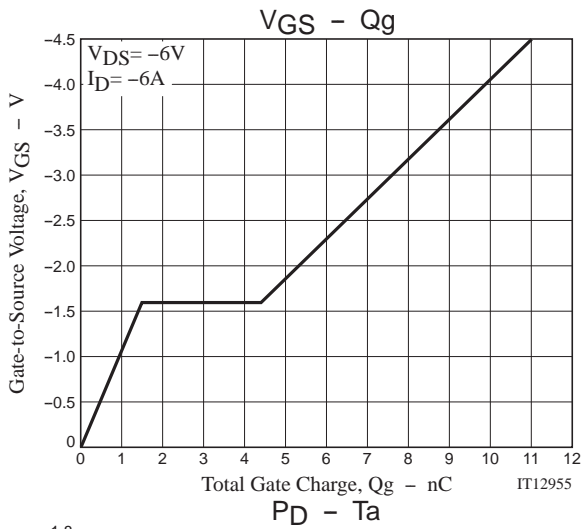
## Switching Time Test Circuit



## Ordering Information

Device	Package	Shipping	memo
ECH8652-TL-H	ECH8	3,000pcs./reel	Pb Free and Halogen Free





Embossed Taping Specification

ECH8652-TL-H

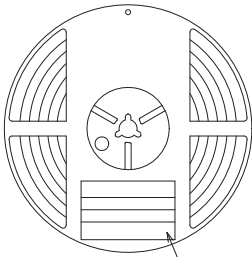
1. Packing Format

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)
ECH8	CPH6	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

Reel label, Inner box label  
(unit :mm)

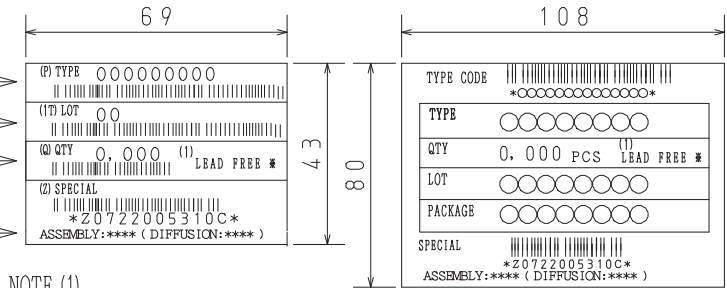
Outer box label  
It is a label at the time of factory shipments.  
The form of a label may change in physical distribution process.

Packing method



Reel label

Type No.  
LOT No.  
Quantity  
Origin



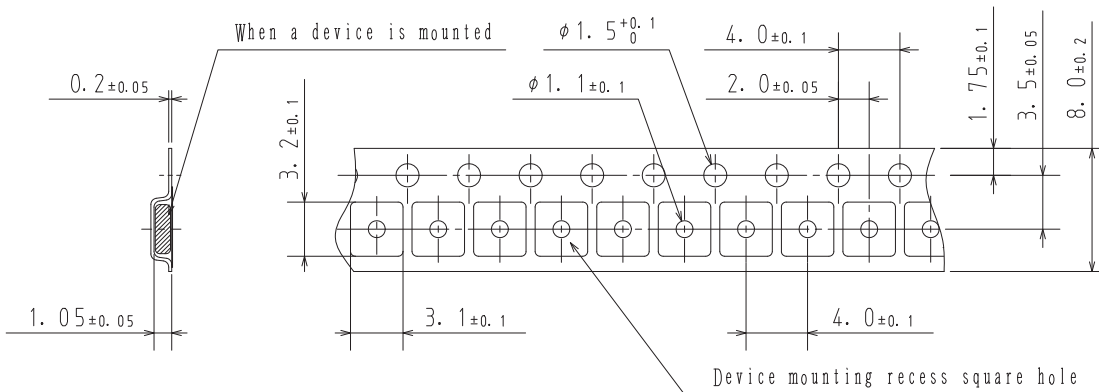
NOTE (1)

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

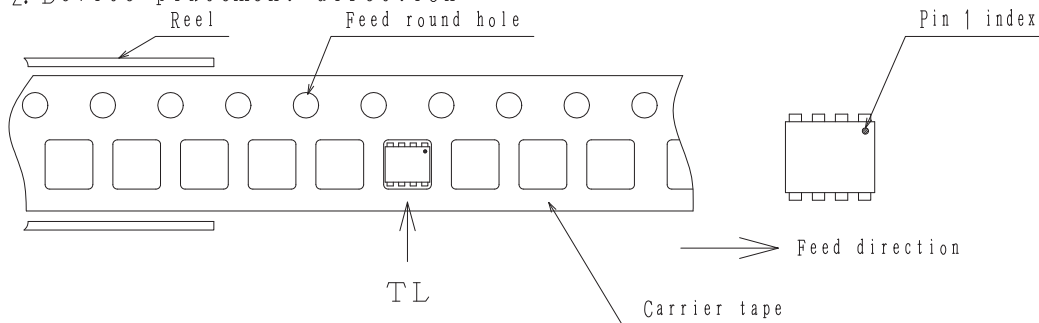
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



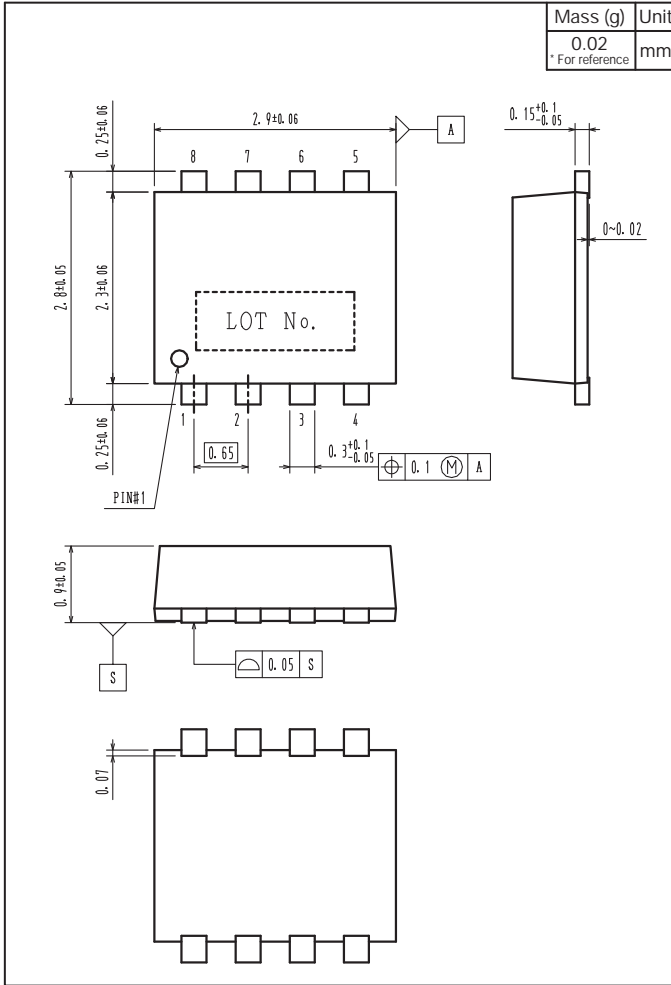
2-2. Device placement direction



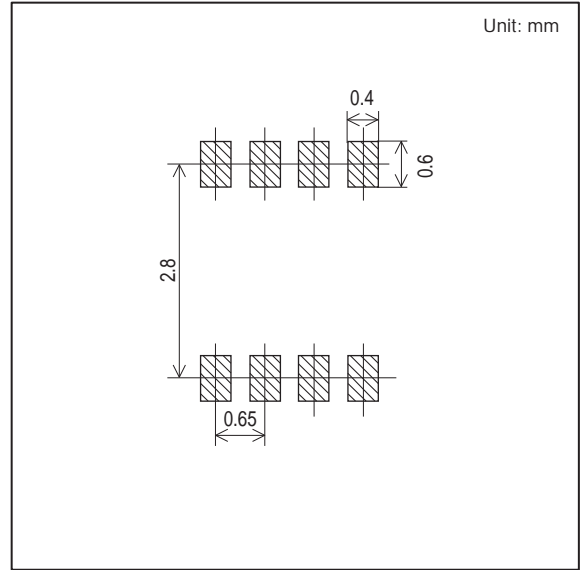
Those with pin 1 index on the feed hole side.....TL

# ECH8652

## Outline Drawing ECH8652-TL-H



## Land Pattern Example



Note on usage : Since the ECH8652 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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