



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## ECH8664R — N-Channel Silicon MOSFET — General-Purpose Switching Device Applications

### Features

- Low ON-resistance
- 2.5V drive
- Common-drain type
- Protection diode in
- Built-in gate protection resistor
- Best suited for LiB charging and discharging switch
- Halogen free compliance

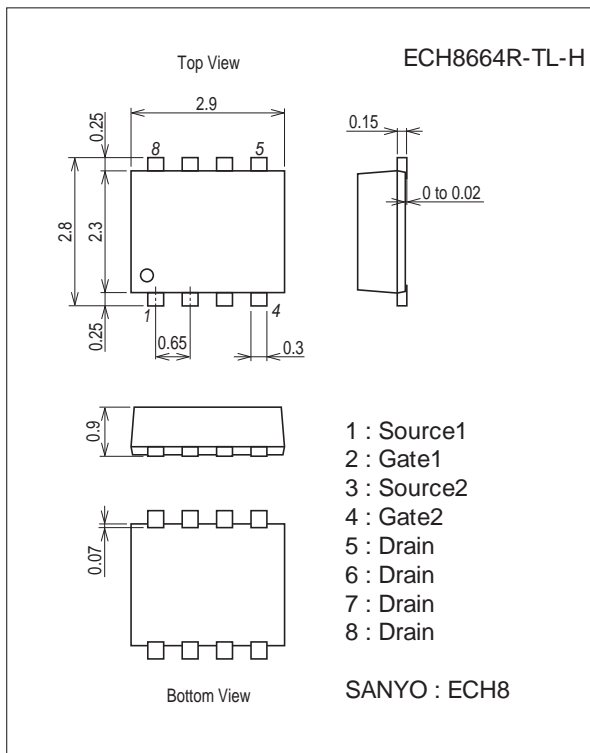
### Specifications

**Absolute Maximum Ratings** at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	VDSS		30	V
Gate-to-Source Voltage	VGSS		±12	V
Drain Current (DC)	ID		7	A
Drain Current (Pulse)	IDP	PW≤10μs, duty cycle≤1%	60	A
Allowable Power Dissipation	PD	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm) 1unit	1.3	W
Total Power Dissipation	PT	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm)	1.4	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C

### Package Dimensions

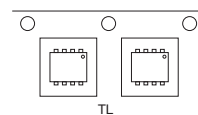
unit : mm (typ)  
7011A-003



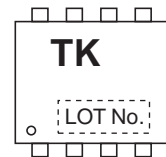
### Product & Package Information

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

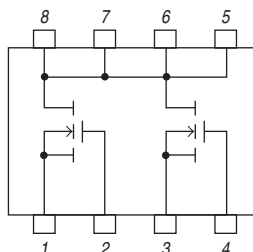
### Packing Type : TL



### Marking



### Electrical Connection

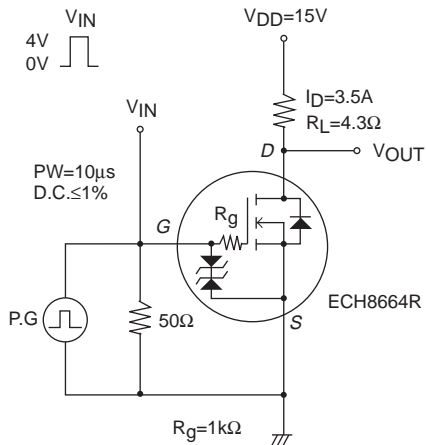


# ECH8664R

## Electrical Characteristics at Ta=25°C

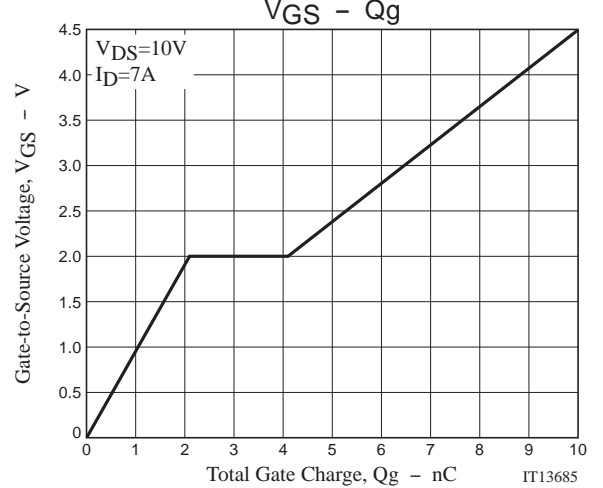
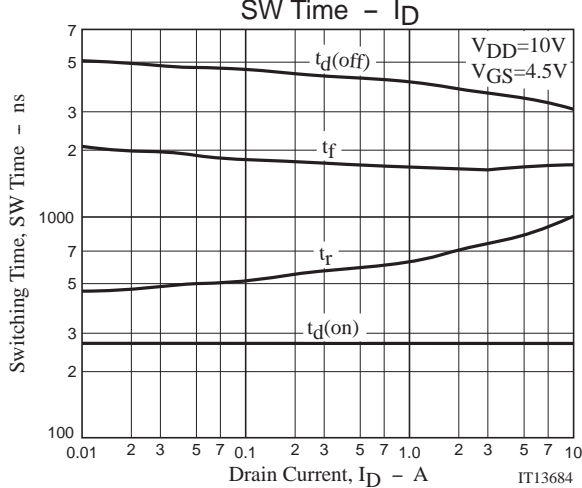
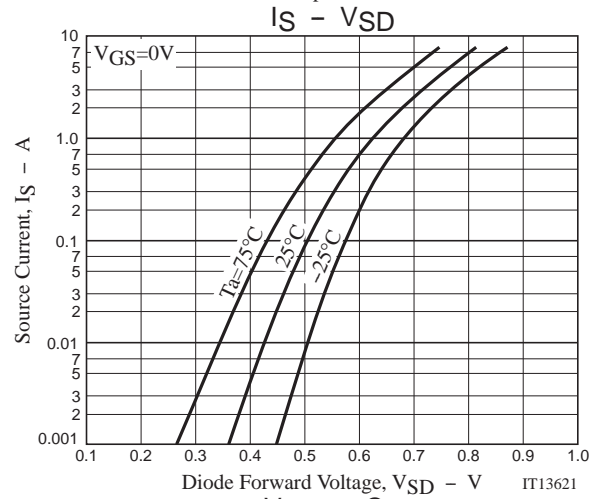
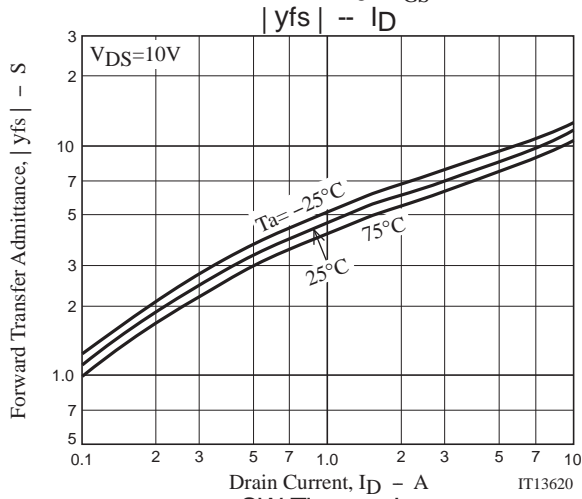
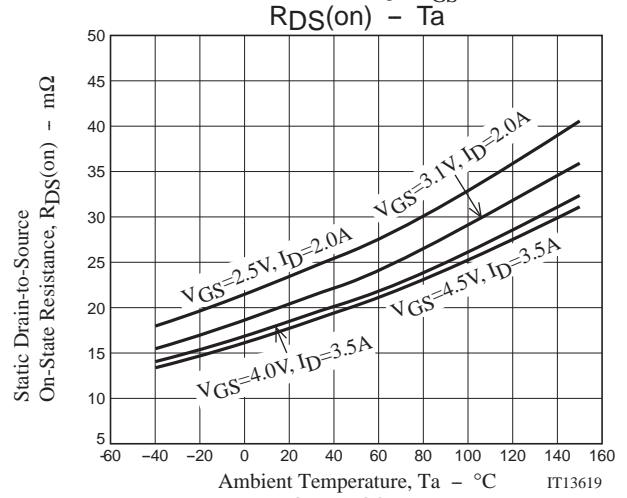
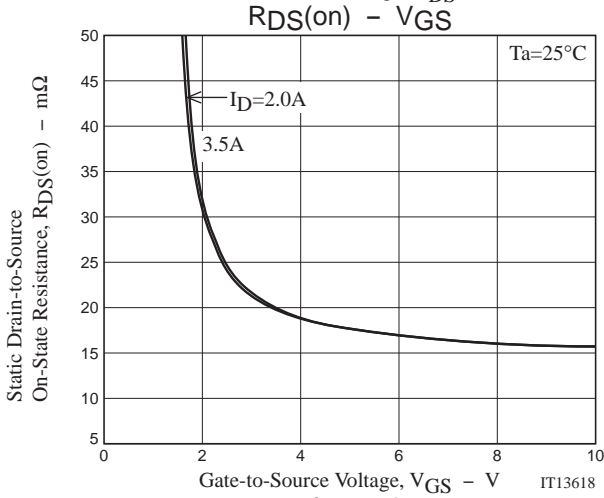
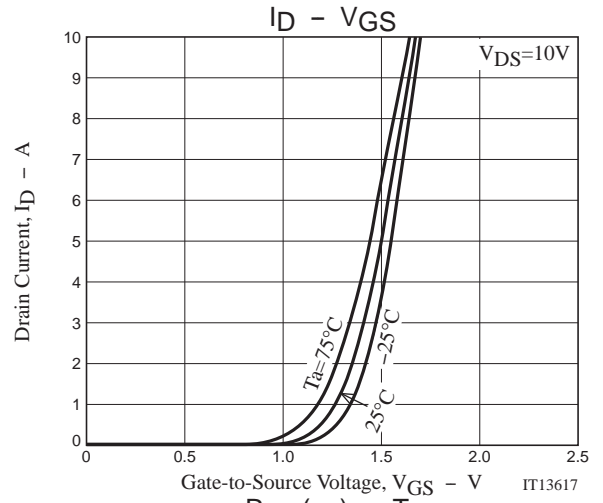
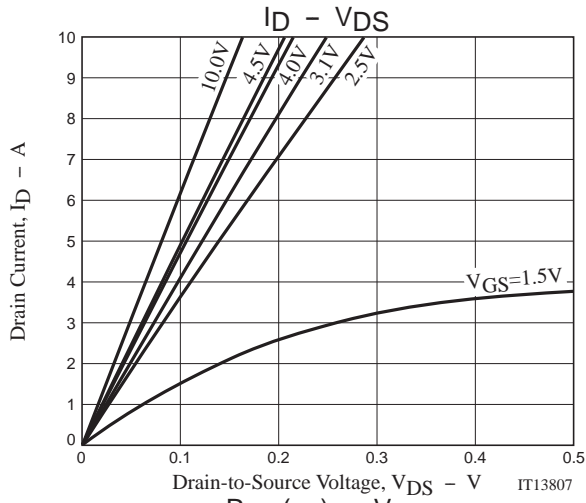
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	30			V
Zero-Gate Voltage Drain Current	IDSS	VDS=30V, VGS=0V			1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±8V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	0.5		1.3	V
Forward Transfer Admittance	yfs	VDS=10V, ID=3.5A	4.5	7.5		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=3.5A, VGS=4.5V	12.5	18	23.5	mΩ
	RDS(on)2	ID=3.5A, VGS=4.0V	13	19	25	mΩ
	RDS(on)3	ID=2A, VGS=3.1V	14.5	21	27.3	mΩ
	RDS(on)4	ID=2A, VGS=2.5V	14.5	24	34	mΩ
Turn-ON Delay Time	td(on)	See specified Test Circuit.		270		ns
Rise Time	tr			850		ns
Turn-OFF Delay Time	td(off)			3300		ns
Fall Time	tf			1700		ns
Total Gate Charge	Qg			10		nC
Gate-to-Source Charge	Qgs	VDS=10V, VGS=4.5V, ID=7A		2.1		nC
Gate-to-Drain "Miller" Charge	Qgd			2.0		nC
Diode Forward Voltage	VSD		IS=7A, VGS=0V	0.75	1.2	

## Switching Time Test Circuit

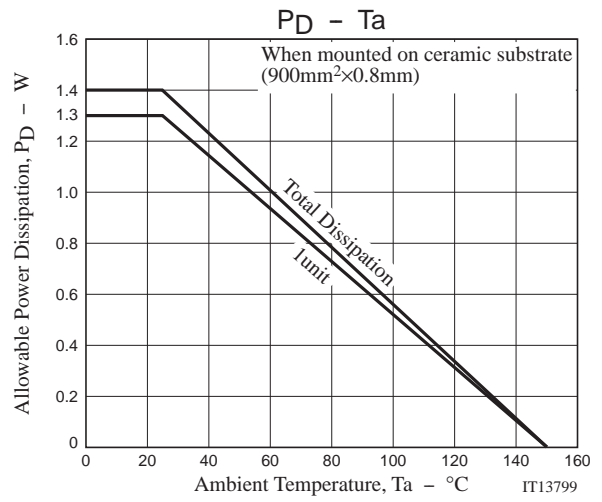
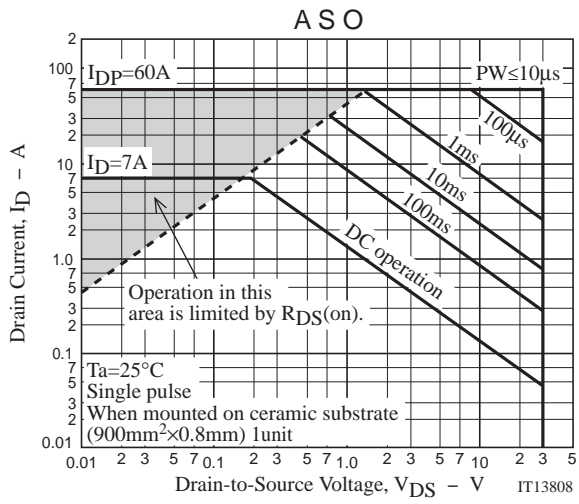


## Ordering Information

Device	Package	Shipping	memo
ECH8664R-TL-H	ECH8	3,000pcs./reel	Pb Free and Halogen Free



# ECH8664R



# ECH8664R

## Embossed Taping Specification

ECH8664R-TL-H

### 1. Packing Format

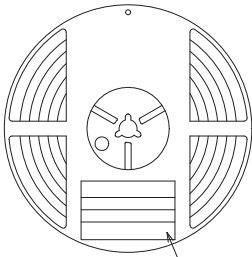
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
ECH8	CPH6	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Reel label, Inner box label  
(unit :mm)

Outer box label

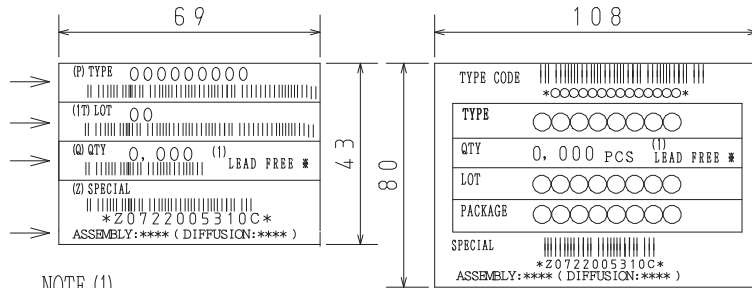
It is a label at the time of factory shipments.  
The form of a label may change in physical distribution process.

#### Packing method



Reel label

Type No.  
LOT No.  
Quantity  
Origin



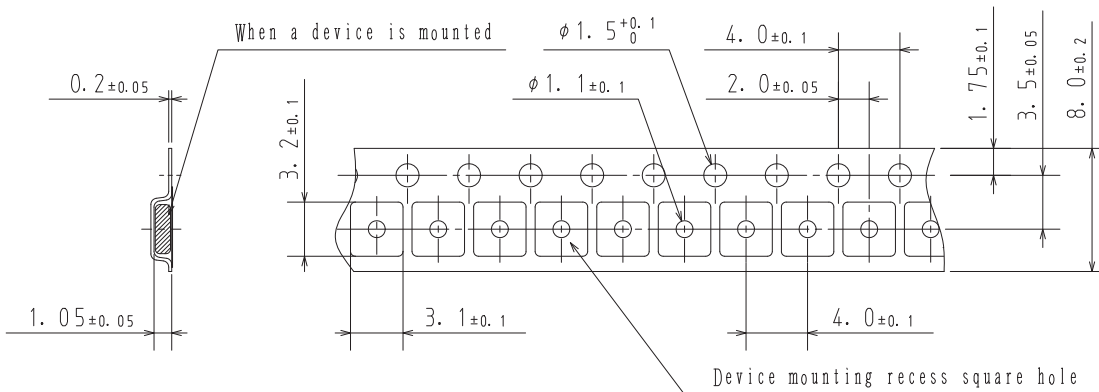
NOTE (1)

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

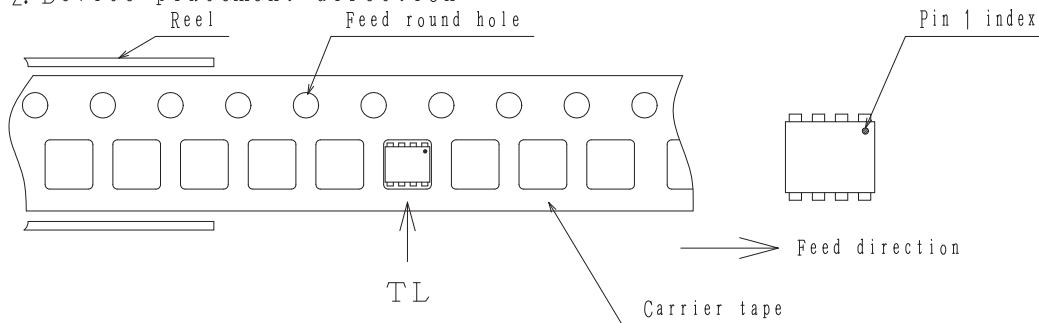
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

### 2. Taping configuration

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



#### 2-2. Device placement direction

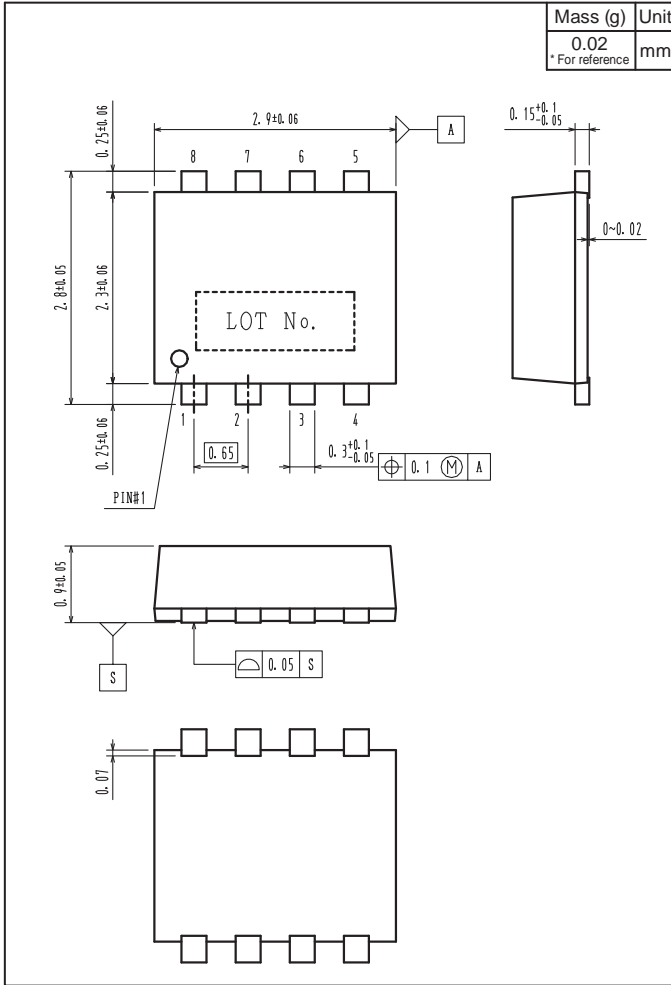


Those with pin 1 index on the feed hole side.....TL

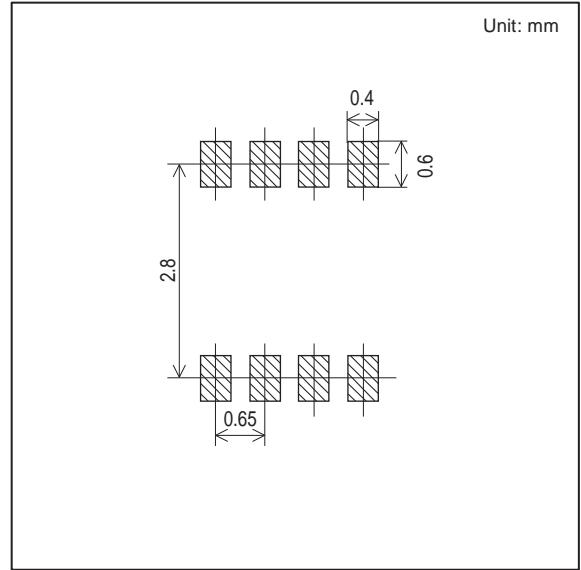
# ECH8664R

## Outline Drawing

ECH8664R-TL-H



## Land Pattern Example



Note on usage : Since the ECH8664R is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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