



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## ECH8655R — 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

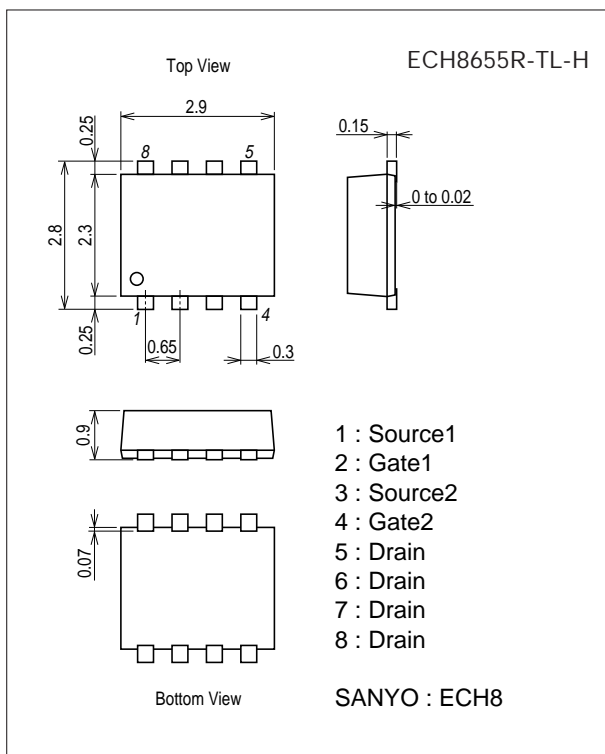
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		24	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±12	V
Drain Current (DC)	I <sub>D</sub>		9	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycles≤1%	60	A
Allowable Power Dissipation	P <sub>D</sub>	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm) 1unit	1.4	W
Total 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.)

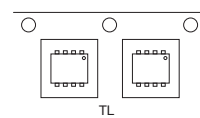
7011A-003



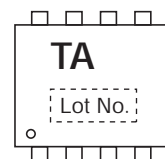
### Product & Package Information

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

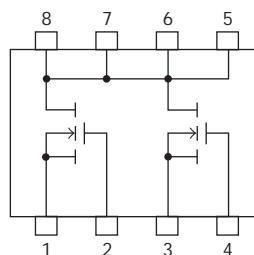
### Packing Type : TL



### Marking



### Electrical Connection

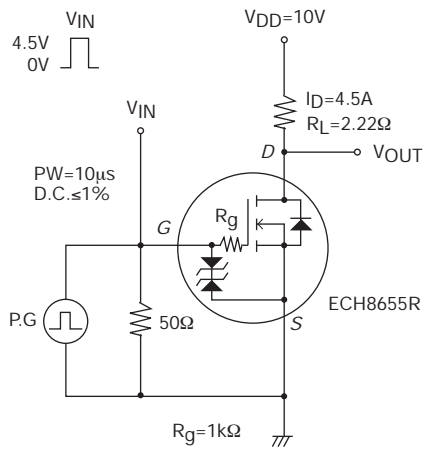


# ECH8655R

## Electrical Characteristics at Ta=25°C

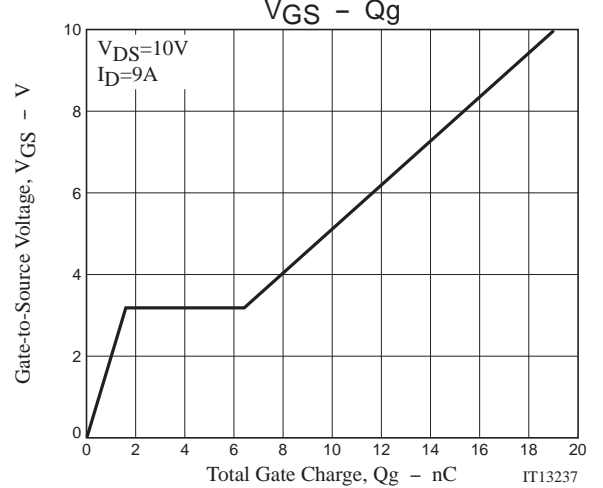
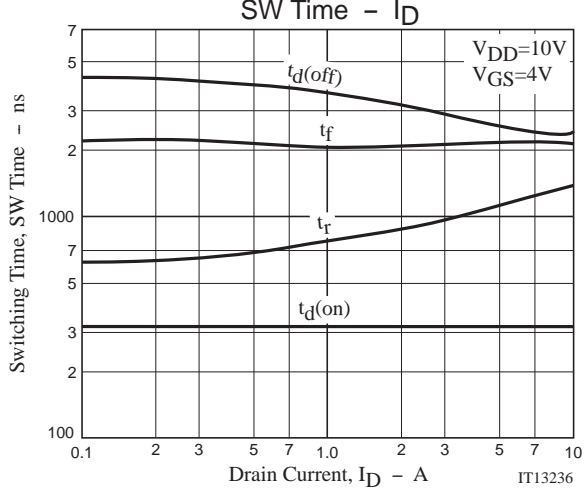
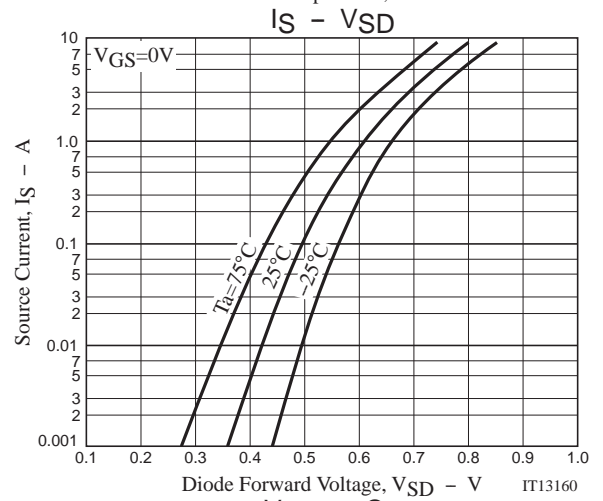
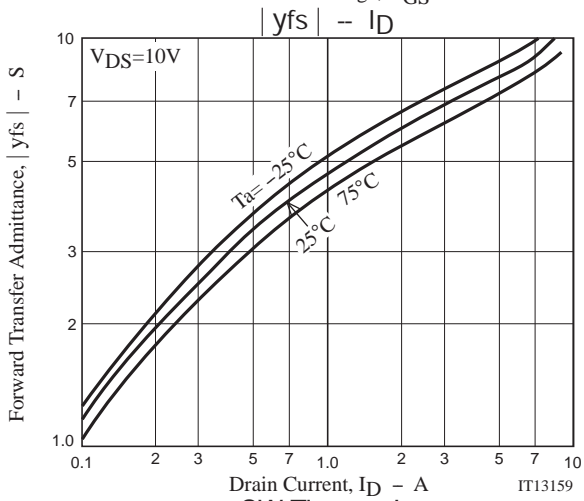
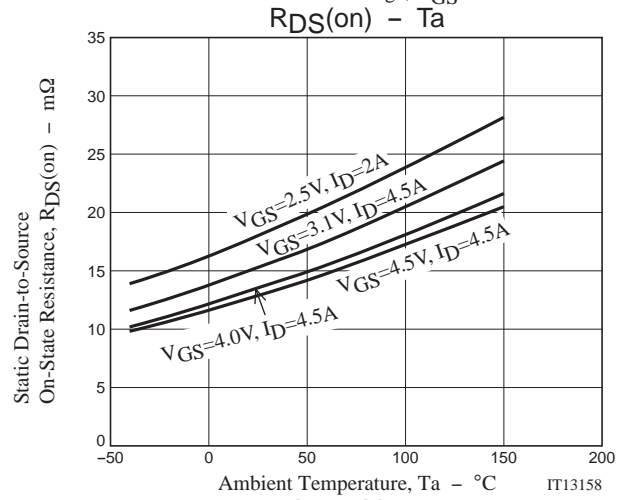
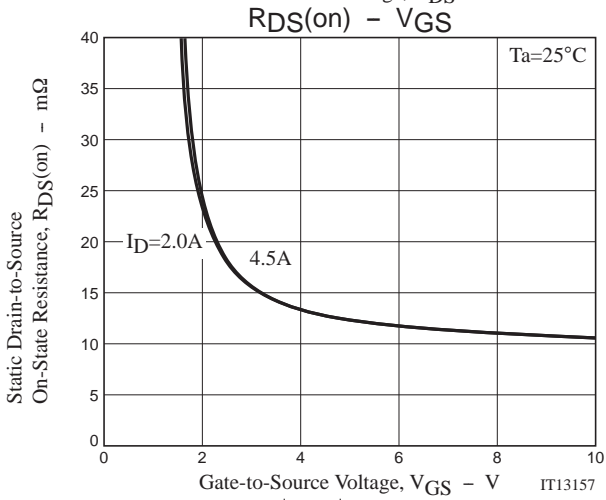
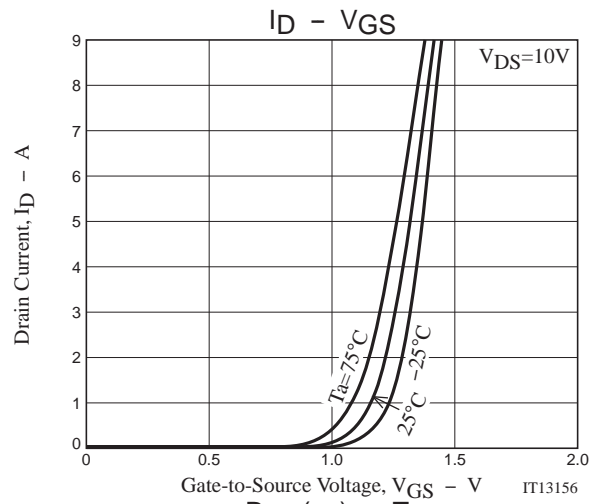
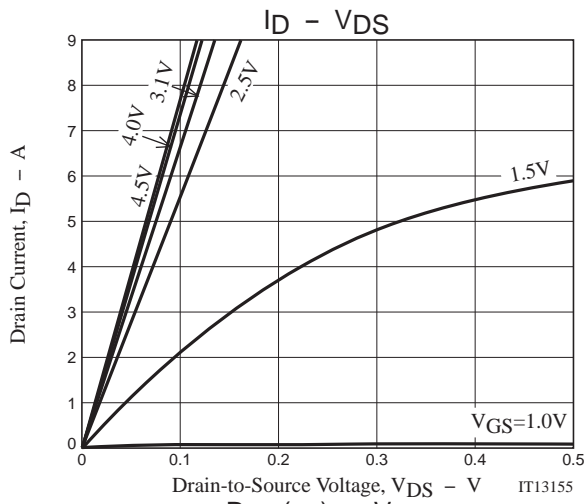
Parameter	Symbol	Conditions	Ratings			Unit
			min.	typ.	max.	
Drain-to-Source Breakdown Voltage	V(BR)DSS	I <sub>D</sub> =1mA, V <sub>GS</sub> =0V	24			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V			1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±8V, V <sub>DS</sub> =0V			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1mA	0.5		1.3	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =4.5A	4.8	8		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =4.5A, V <sub>GS</sub> =4.5V	9	13	17	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =4.5A, V <sub>GS</sub> =4.0V	9	13.5	18	mΩ
	R <sub>DS(on)3</sub>	I <sub>D</sub> =4.5A, V <sub>GS</sub> =3.1V	9.2	15	21	mΩ
	R <sub>DS(on)4</sub>	I <sub>D</sub> =2A, V <sub>GS</sub> =2.5V	10.5	18	25.5	mΩ
Turn-ON Delay Time	t <sub>d(on)</sub>	See specified Test Circuit.		320		ns
Rise Time	t <sub>r</sub>			1100		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>			2400		ns
Fall Time	t <sub>f</sub>			2100		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =9A		16.8		nC
Gate-to-Source Charge	Q <sub>gs</sub>			1.6		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>			4.8		nC
Diode Forward Voltage	V <sub>SD</sub>		I <sub>S</sub> =9A, V <sub>GS</sub> =0V		0.8	1.2

## Switching Time Test Circuit

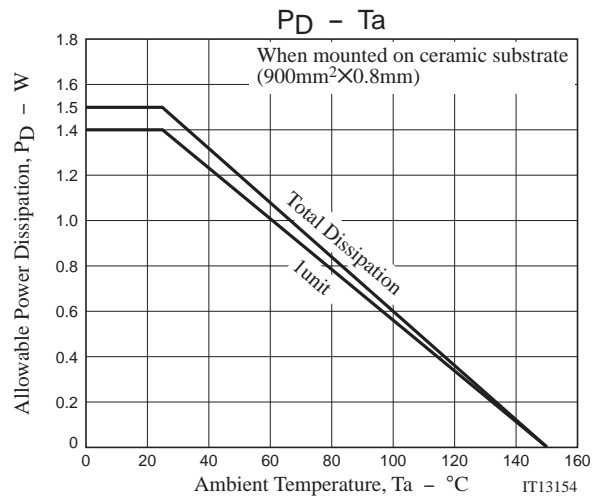
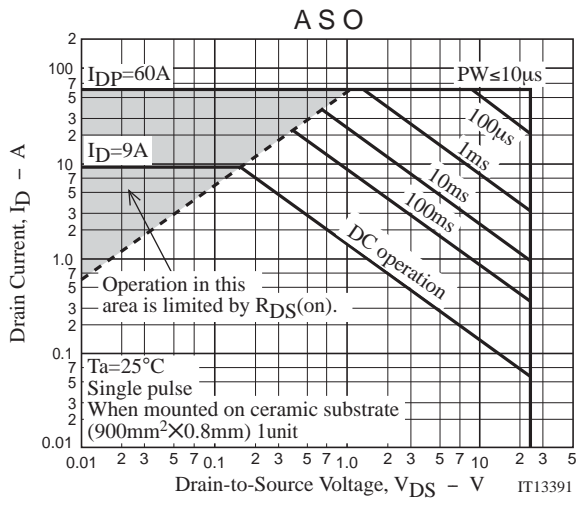


## Ordering Information

Device	Package	Shipping	memo
ECH8655R-TL-H	ECH8	3,000pcs./reel	Pb Free and Halogen Free



# ECH8655R



# ECH8655R

## Embossed Taping Specification

### ECH8655R-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

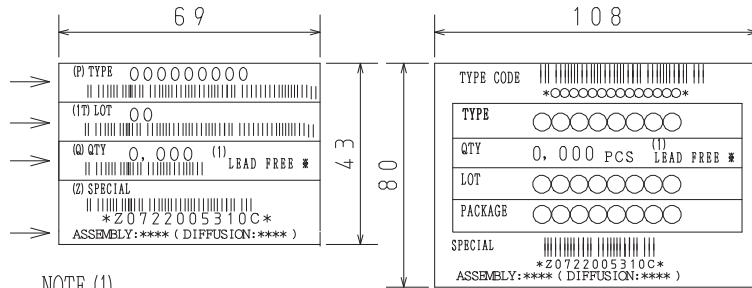
It is a label at the time of factory shipments.  
The form of a label may change in physical distribution process.

#### Packing method



Reel label

Type No.  
LOT No.  
Quantity  
Origin



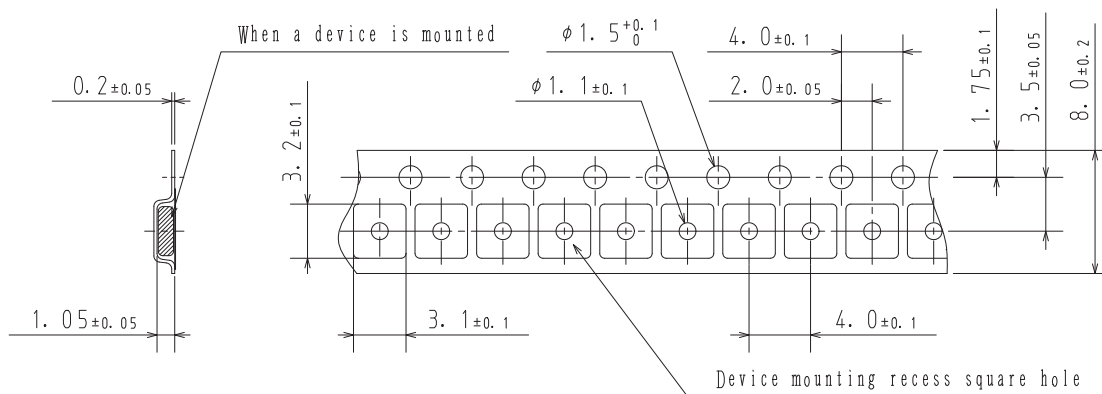
NOTE (1)

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

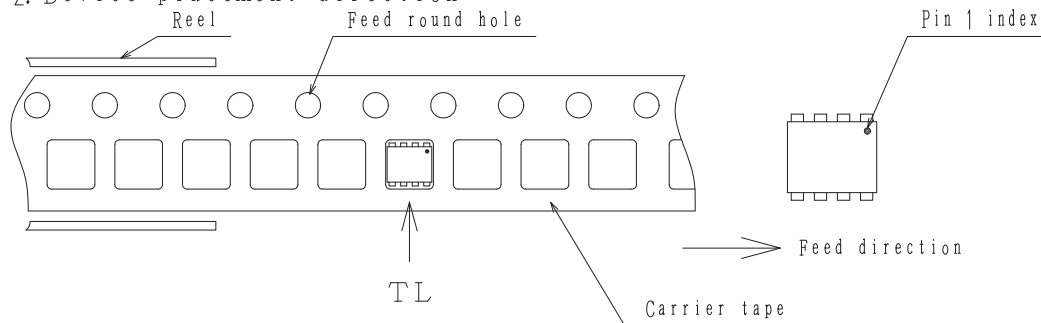
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

#### 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

# ECH8655R

## Outline Drawing ECH8655R-TL-H



## Land Pattern Example



Note on usage : Since the ECH8655R is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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- Подбор аналогов;
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- Техническая поддержка проекта;
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#### Как с нами связаться

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