



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

ECH8655R — 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

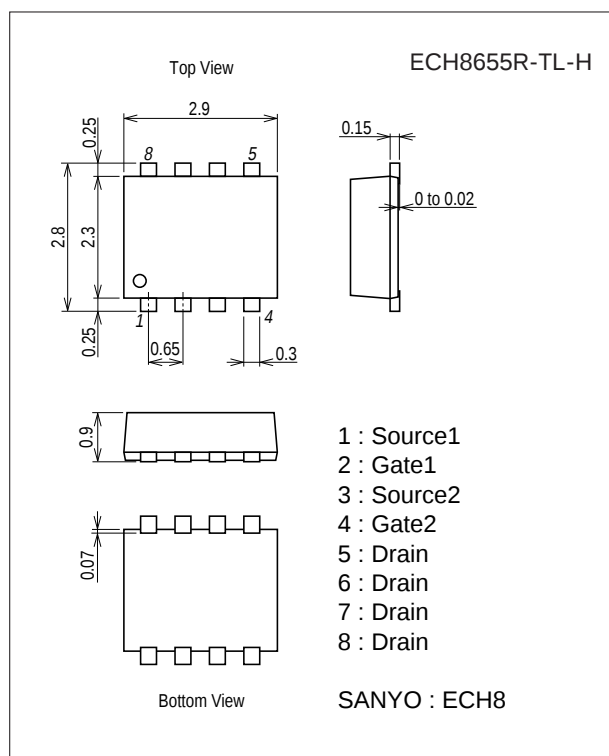
Absolute Maximum Ratings at Ta=25°C

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

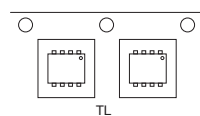
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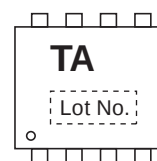
Product & Package Information

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

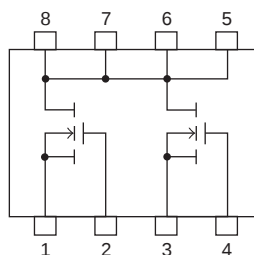
Packing Type : TL



Marking



Electrical Connection

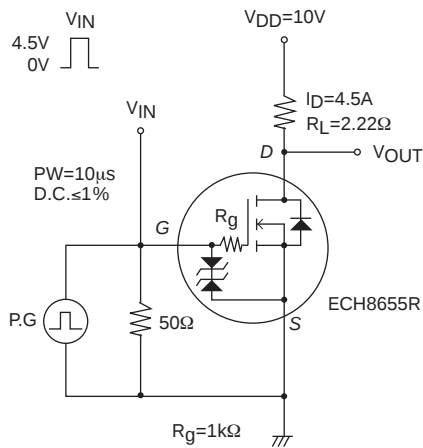


ECH8655R

Electrical Characteristics at $T_a=25^{\circ}\text{C}$

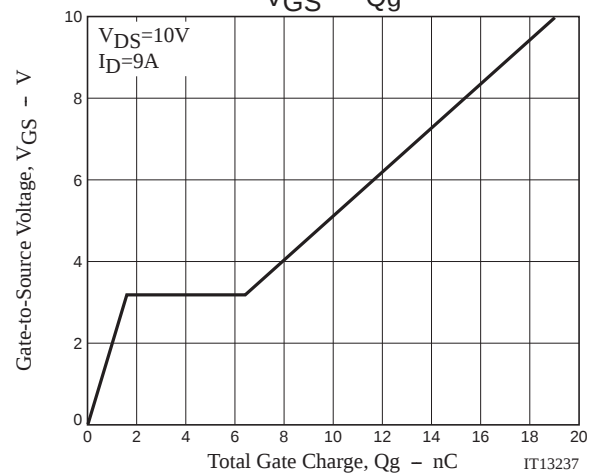
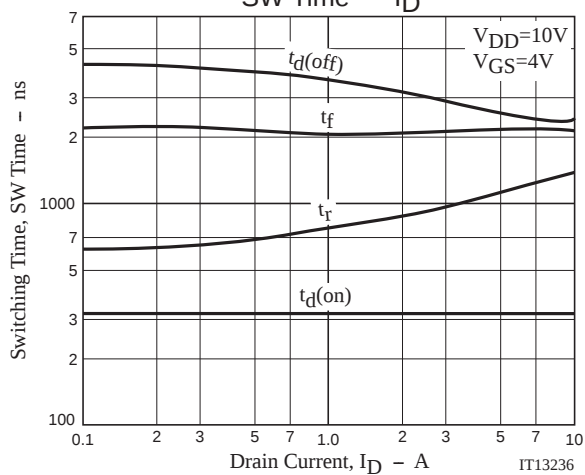
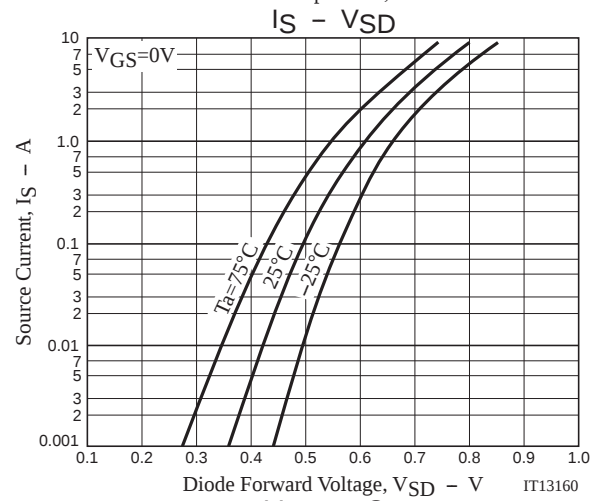
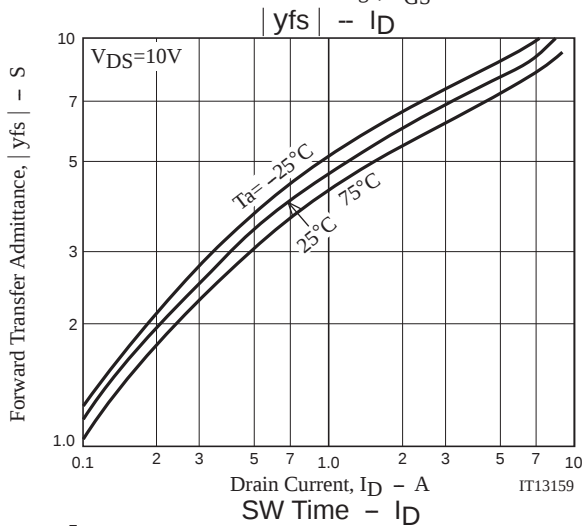
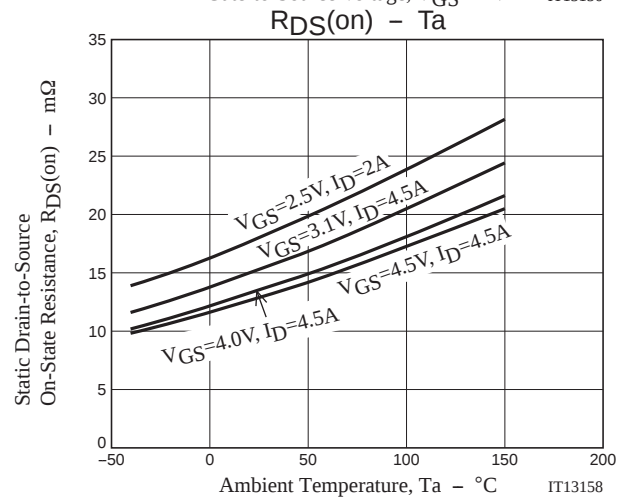
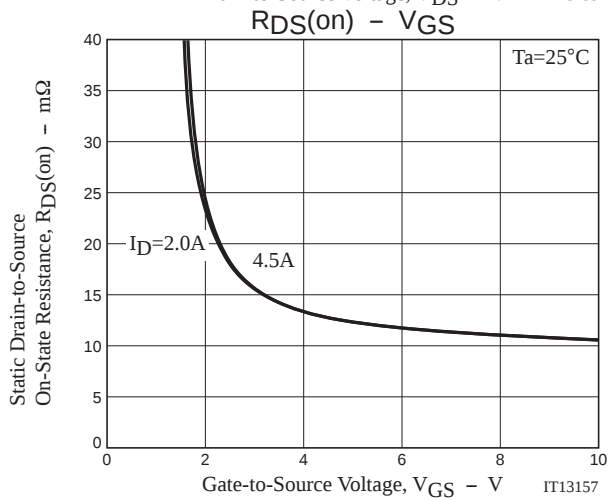
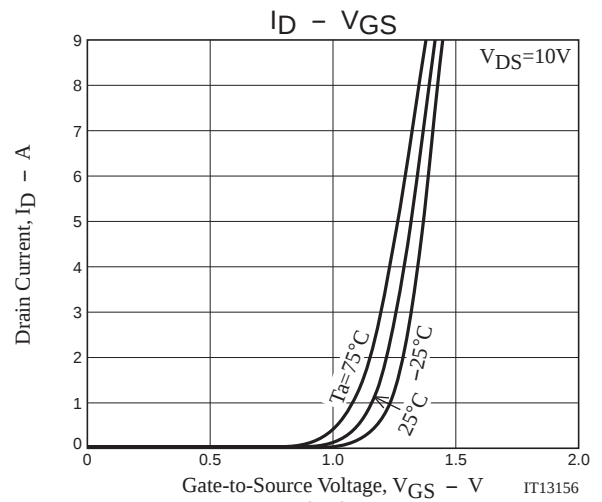
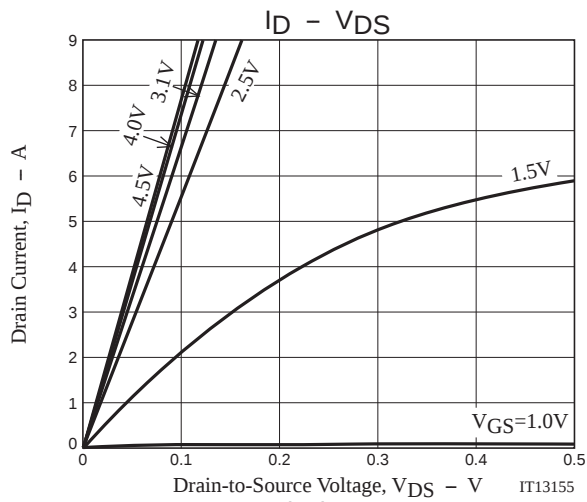
Parameter	Symbol	Conditions	Ratings			Unit
			min.	typ.	max.	
Drain-to-Source Breakdown Voltage	V(BR)DSS	I _D =1mA, V _{GS} =0V	24			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V			±10	μA
Cutoff Voltage	V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

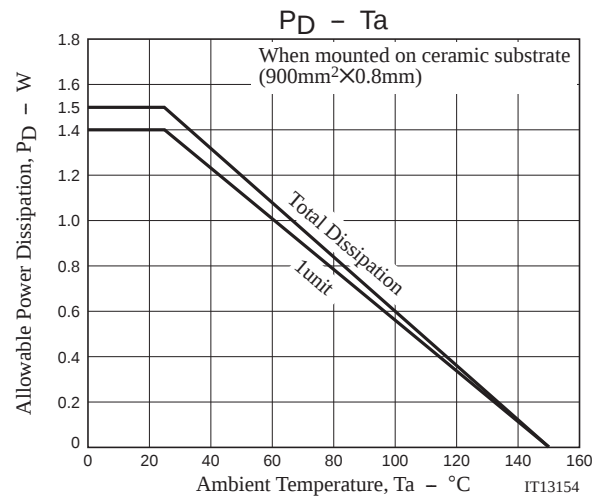
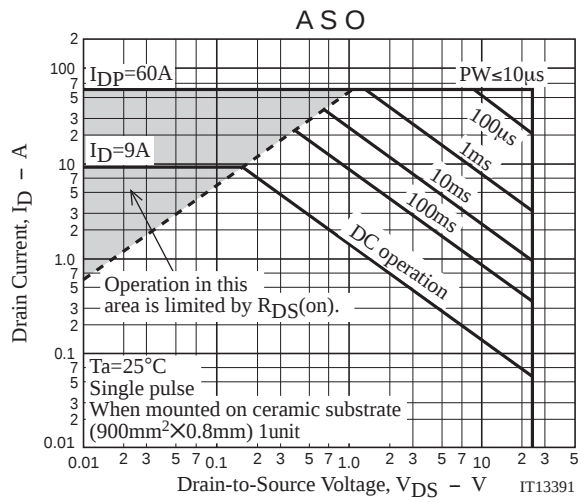
Switching Time Test Circuit



Ordering Information

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





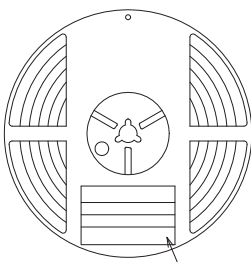
Embossed Taping Specification

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

Packing method



Reel label

Type No.
LOT No.
Quantity
Origin

Reel label, Inner box label
(unit:mm)

(P) TYPE	000000000
(1) LOT	00
(Q) QTY	0,000 (1) LEAD FREE *
(2) SPECIAL	
	20722005310C
	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	00000000000000000000
TYPE	00000000
QTY	0,000 PCS (1) LEAD FREE *
LOT	00000000
PACKAGE	00000000
SPECIAL	
	20722005310C
	ASSEMBLY:**** (DIFFUSION:****)

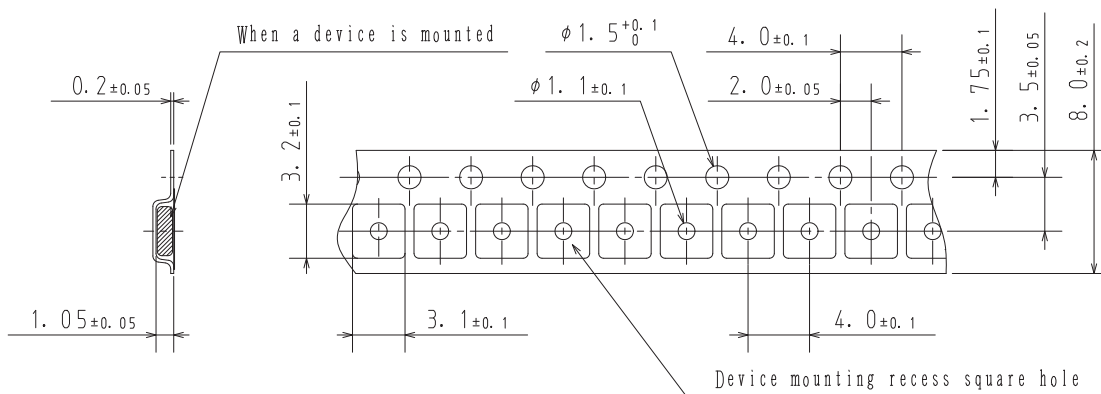
NOTE (1)

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

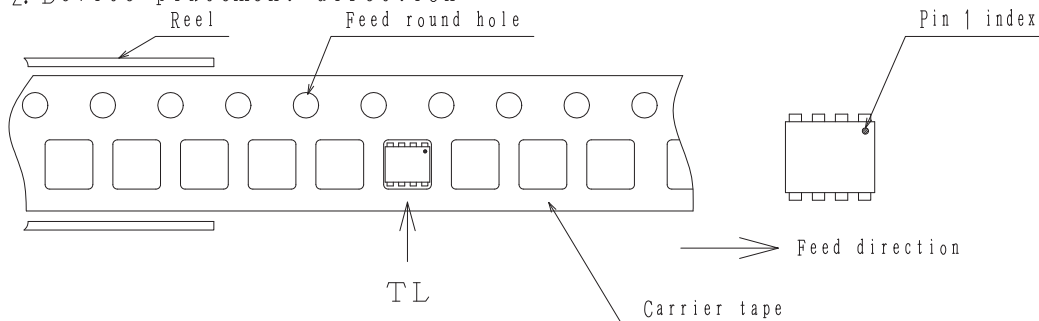
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction

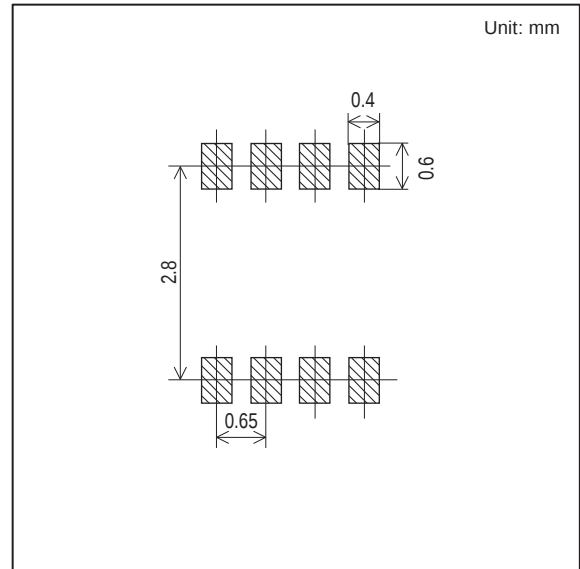
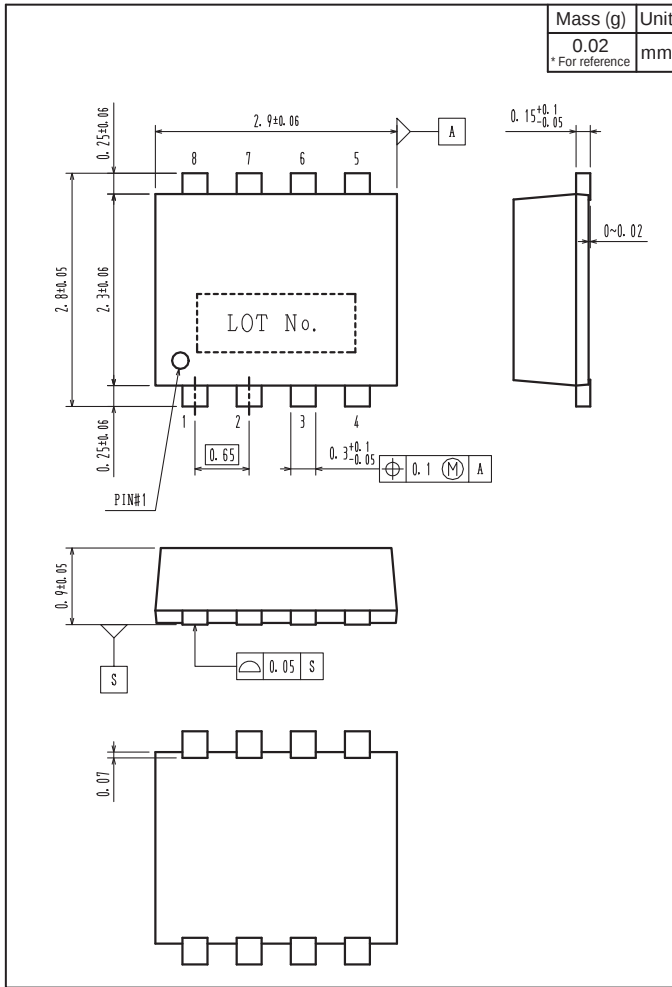


Those with pin 1 index on the feed hole side.....TL

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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