



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

ECH8651R — 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

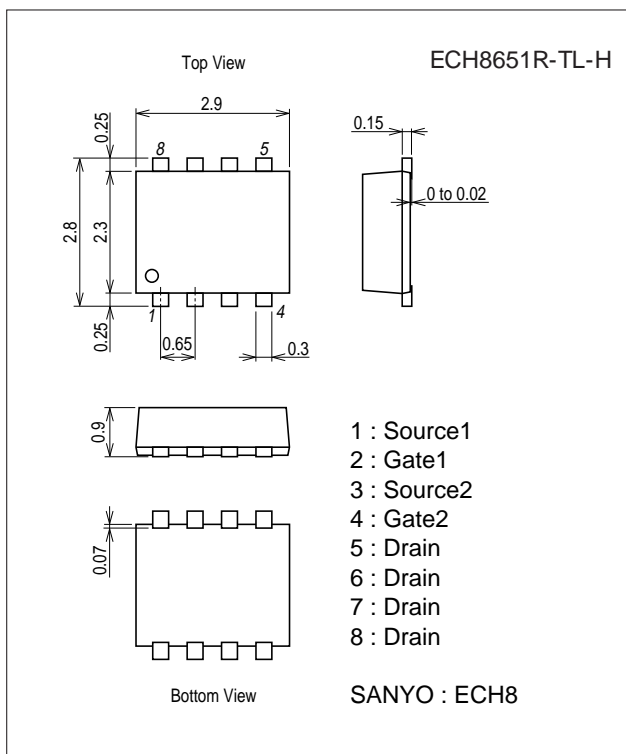
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V _{DSS}		24	V
Gate-to-Source Voltage	V _{GSS}		±12	V
Drain Current (DC)	I _D		10	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)

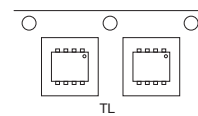
7011A-003



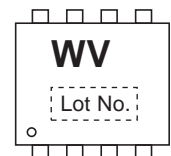
Product & Package Information

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

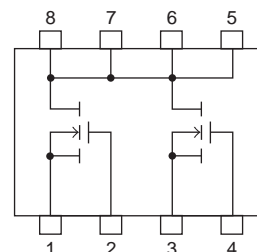
Packing Type : TL



Marking



Electrical Connection

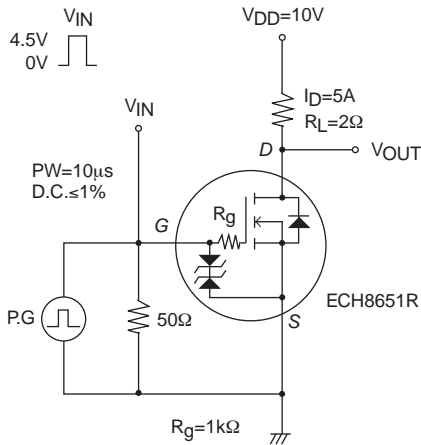


ECH8651R

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	24			V
Zero-Gate Voltage Drain Current	IDSS	VDS=20V, 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=5A	5.5	9.5		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=5A, VGS=4.5V	7	10.5	14	mΩ
	RDS(on)2	ID=5A, VGS=4.0V	7.2	11	15	mΩ
	RDS(on)3	ID=5A, VGS=3.1V	7.5	12.5	17.5	mΩ
	RDS(on)4	ID=2.5A, VGS=2.5V	9	15	21	mΩ
Turn-ON Delay Time	td(on)	See specified Test Circuit.		300		ns
Rise Time	tr			1000		ns
Turn-OFF Delay Time	td(off)			4000		ns
Fall Time	tf			2500		ns
Total Gate Charge	Qg			24		nC
Gate-to-Source Charge	Qgs	VDS=10V, VGS=10V, ID=10A		2		nC
Gate-to-Drain "Miller" Charge	Qgd			4.5		nC
Diode Forward Voltage	VSD		IS=10A, VGS=0V	0.77	1.2	V

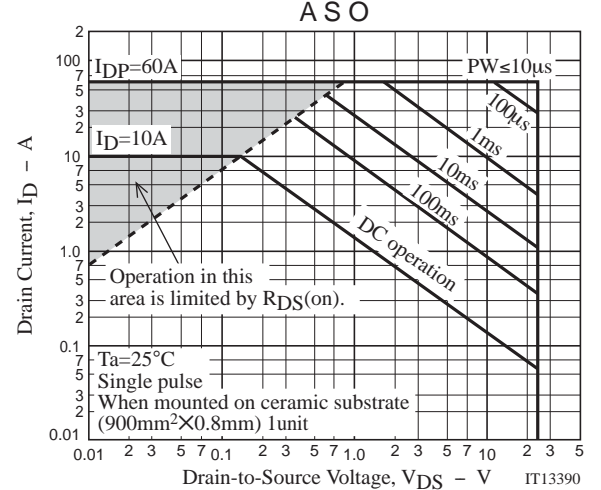
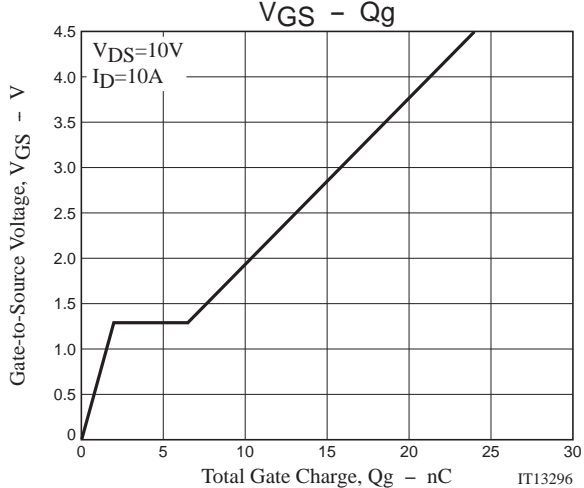
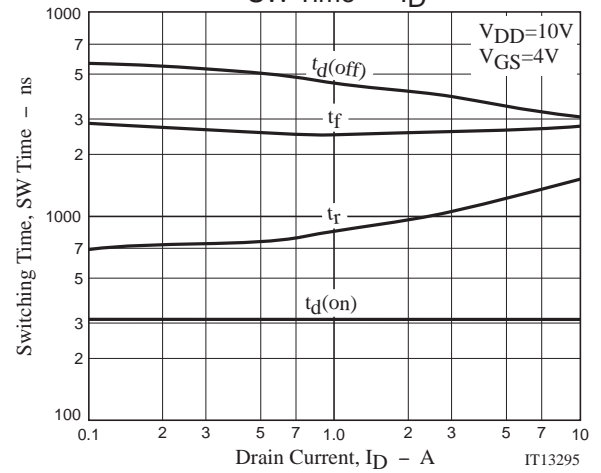
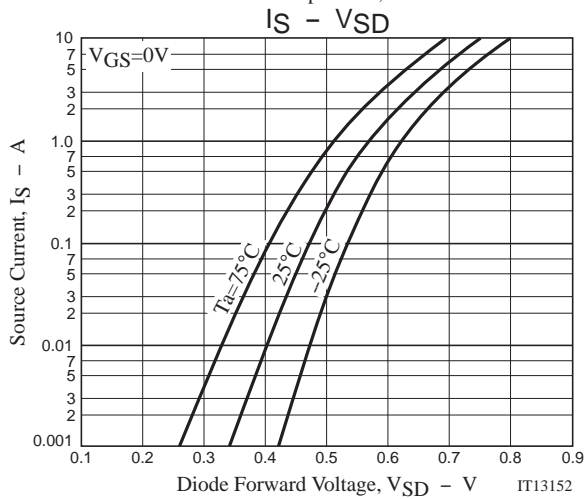
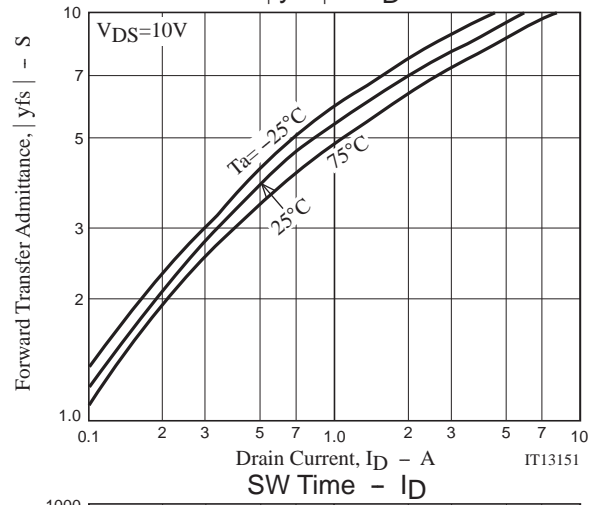
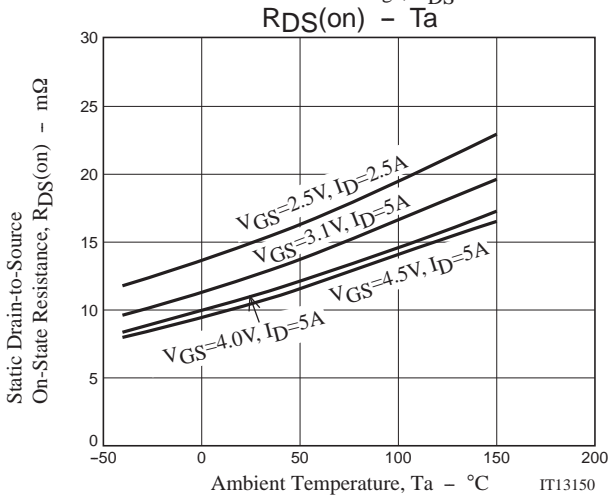
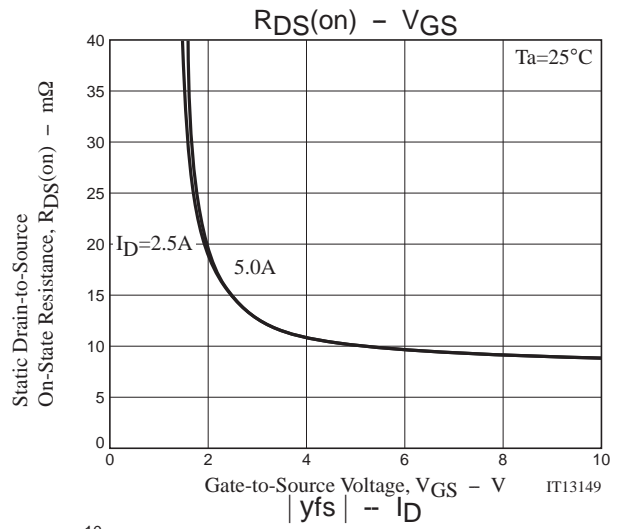
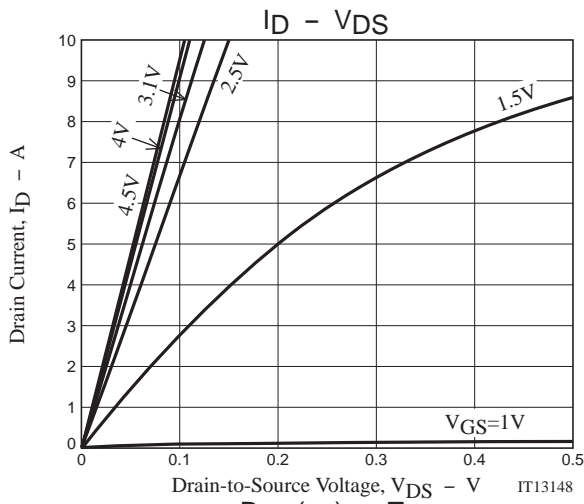
Switching Time Test Circuit



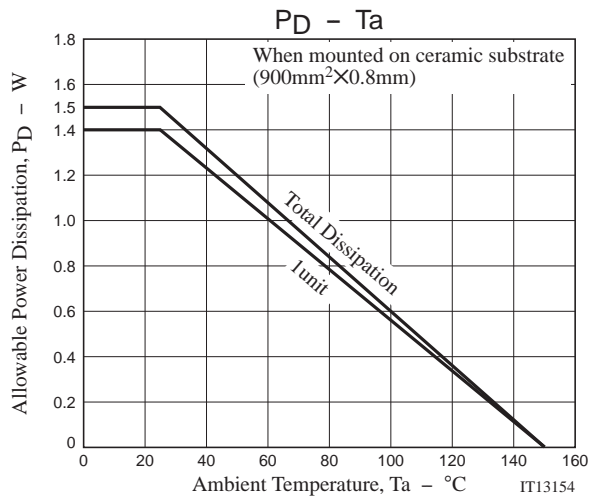
Ordering Information

Device	Package	Shipping	memo
ECH8651R-TL-H	ECH8	3,000pcs./reel	Pb Free and Halogen Free

ECH8651R



ECH8651R



ECH8651R

Embossed Taping Specification

ECH8651R-TL-H

1. Packing Format

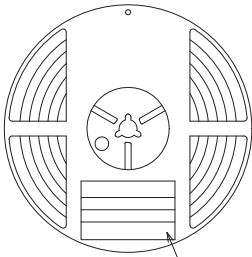
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
ECH8	CPH6	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Reel label, Inner box label
(unit :mm)

Outer box label

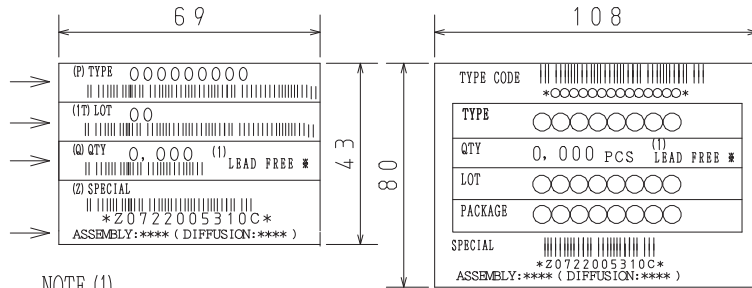
It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.

Packing method



Reel label

Type No.
LOT No.
Quantity
Origin



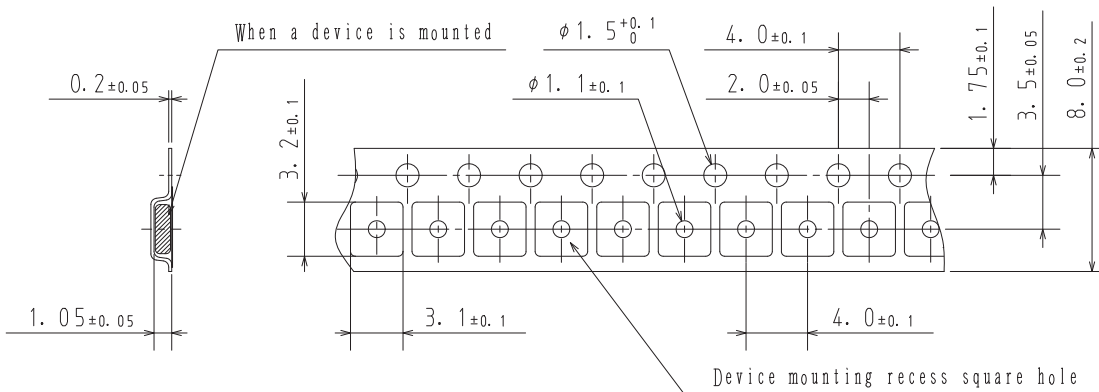
NOTE (1)

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

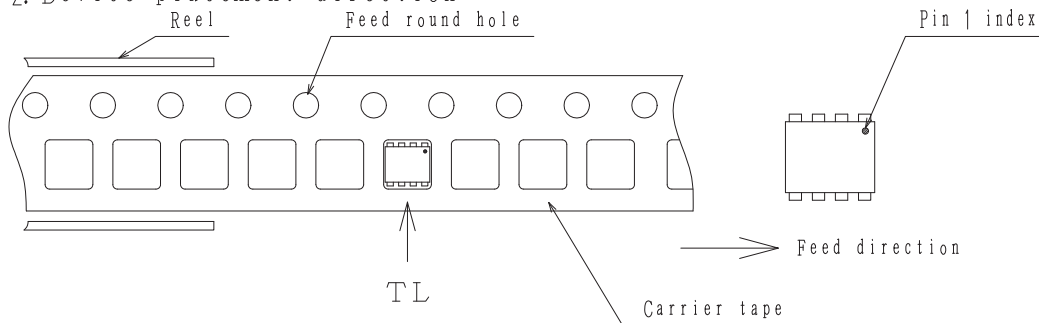
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction

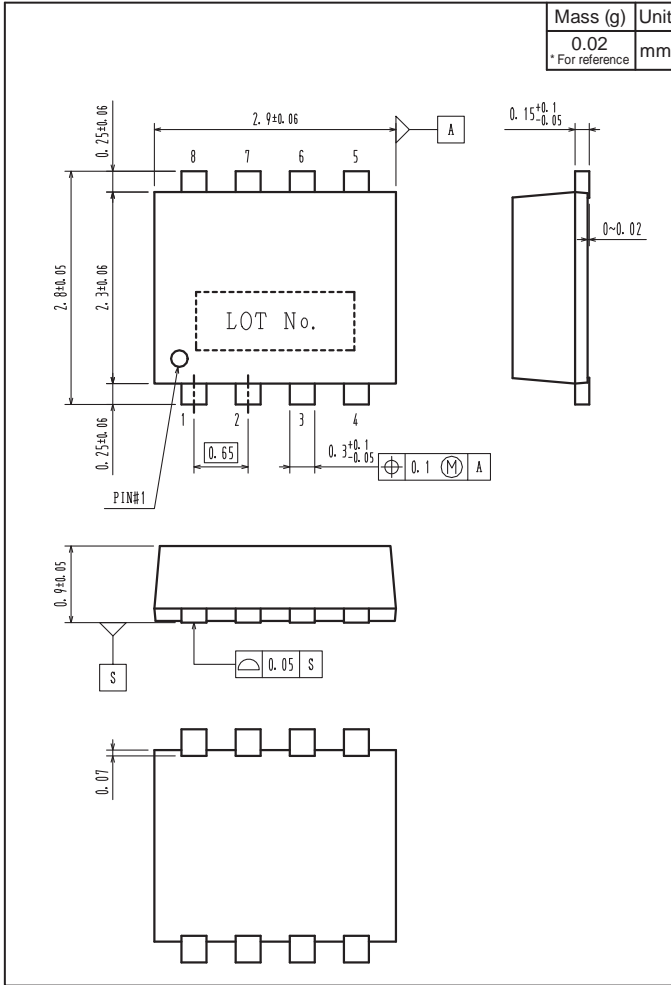


Those with pin 1 index on the feed hole side.....TL

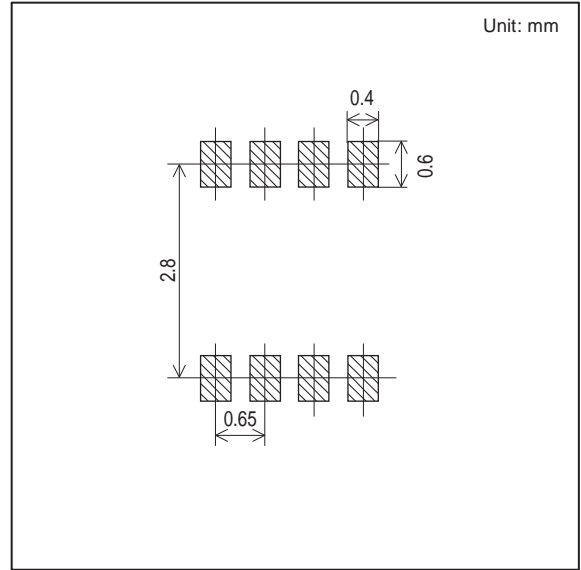
ECH8651R

Outline Drawing

ECH8651R-TL-H



Land Pattern Example



Note on usage : Since the ECH8651R is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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