



ECH8659 — N-Channel Silicon MOSFET — General-Purpose Switching Device Applications

Features

- 4V drive
- Composite type, facilitating high-density mounting
- Halogen free compliance
- Protection diode in

Specifications

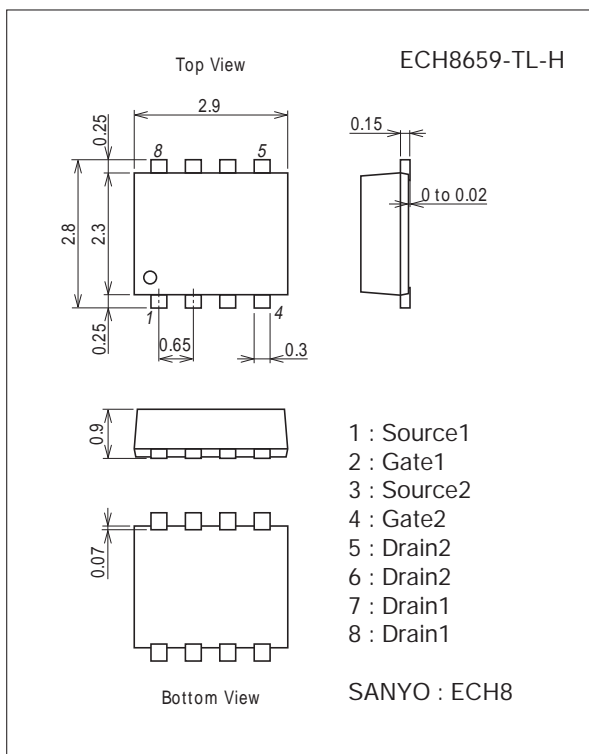
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V _{DSS}		30	V
Gate-to-Source Voltage	V _{GSS}		±20	V
Drain Current (DC)	I _D		7	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycles≤1%	40	A
Allowable Power Dissipation	P _D	When mounted on ceramic substrate (900mm ² ×0.8mm) 1unit	1.3	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)

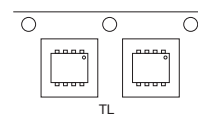
7011A-001



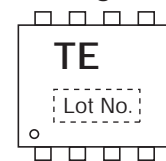
Product & Package Information

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

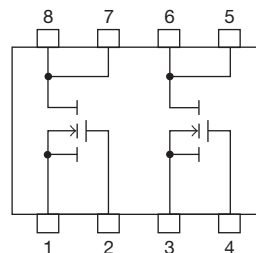
Packing Type : TL



Marking



Electrical Connection

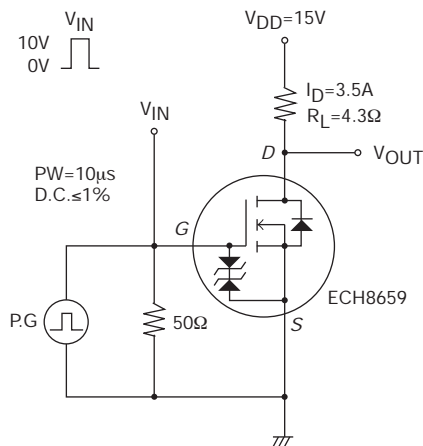


ECH8659

Electrical Characteristics at Ta=25°C

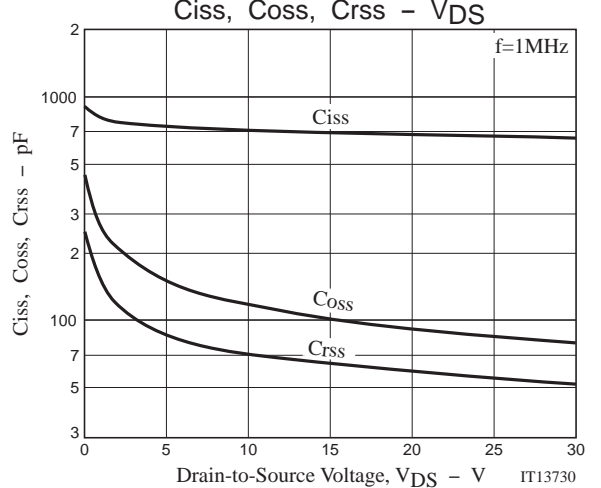
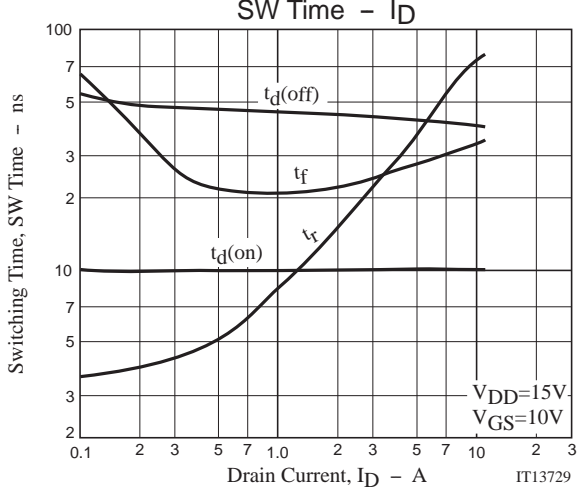
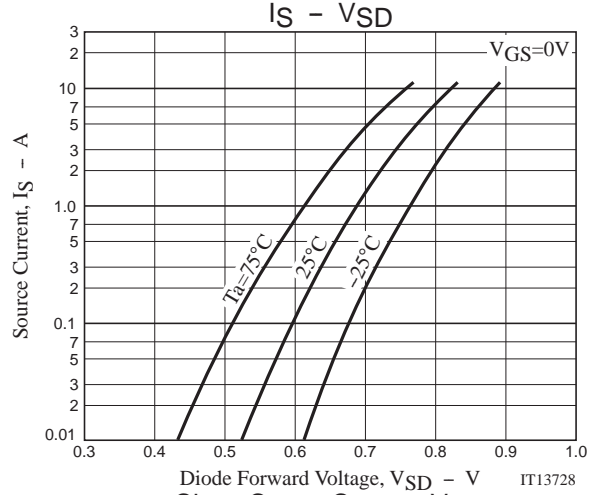
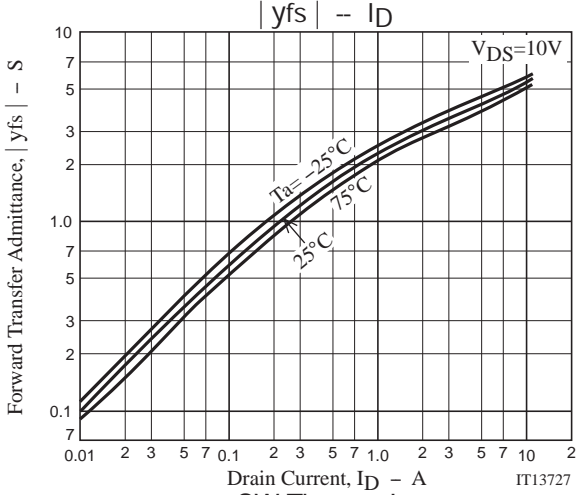
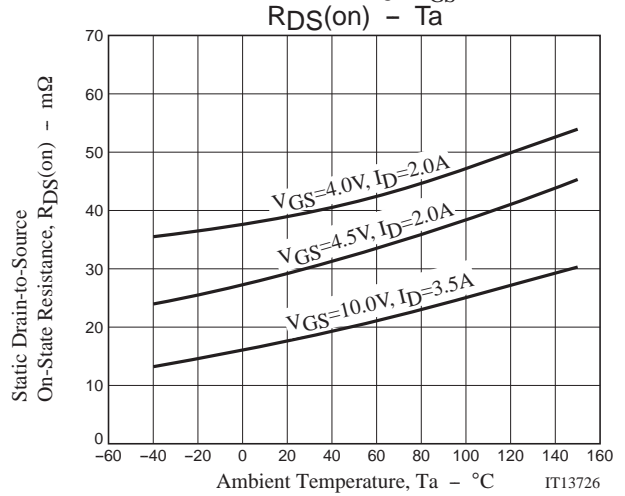
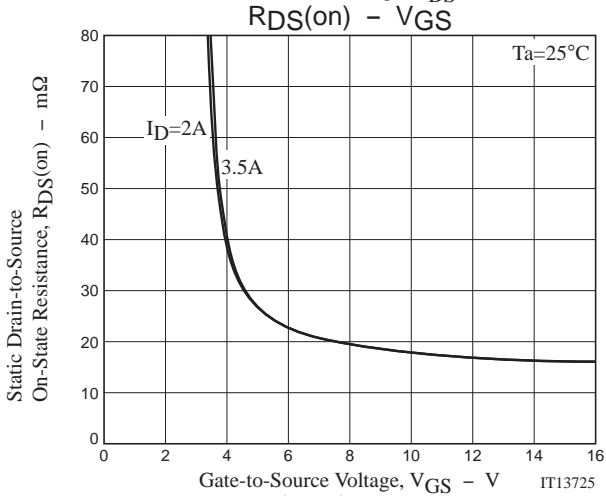
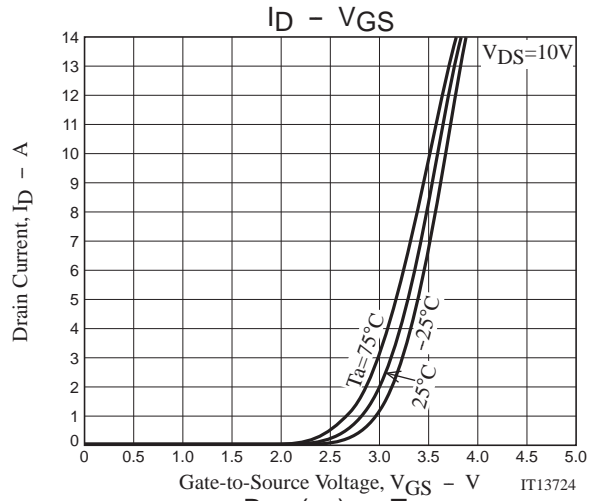
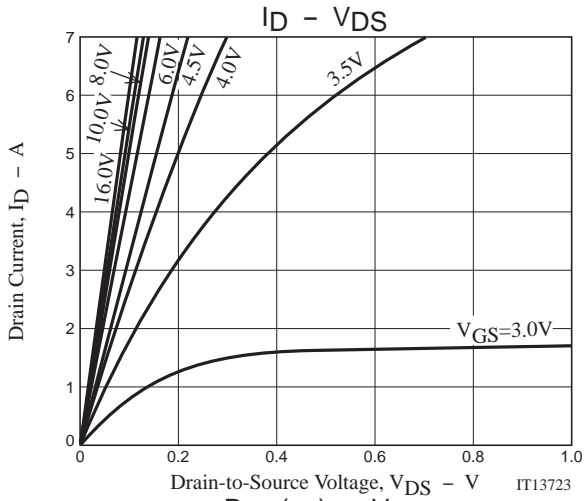
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	I _D =1mA, V _{GS} =0V	30			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±16V, V _{DS} =0V			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =10V, I _D =1mA	1.2		2.6	V
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =3.5A	2.2	3.7		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =3.5A, V _{GS} =10V		18	24	mΩ
	R _{DS(on)2}	I _D =2A, V _{GS} =4.5V		29	41	mΩ
	R _{DS(on)3}	I _D =2A, V _{GS} =4V		39	55	mΩ
Input Capacitance	C _{iss}	V _{DS} =10V, f=1MHz		710		pF
Output Capacitance	C _{oss}	V _{DS} =10V, f=1MHz		120		pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} =10V, f=1MHz		72		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit.		10		ns
Rise Time	t _r			25		ns
Turn-OFF Delay Time	t _{d(off)}			43		ns
Fall Time	t _f			25		ns
Total Gate Charge	Q _g		V _{DS} =15V, V _{GS} =10V, I _D =3.5A		11.8	
Gate-to-Source Charge	Q _{gs}			2.4		nC
Gate-to-Drain "Miller" Charge	Q _{gd}			2.0		nC
Diode Forward Voltage	V _{SD}	I _S =7A, V _{GS} =0V		0.79	1.2	V

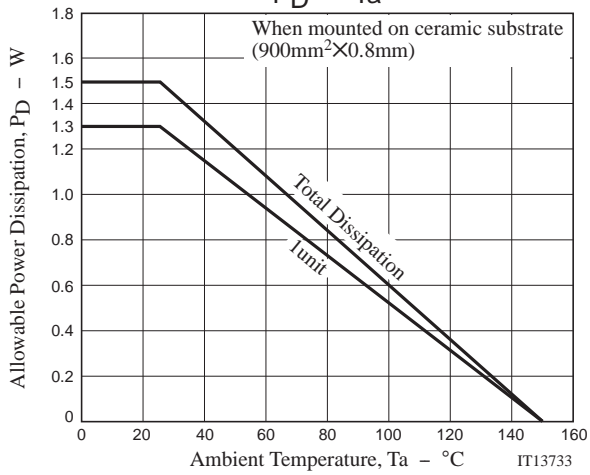
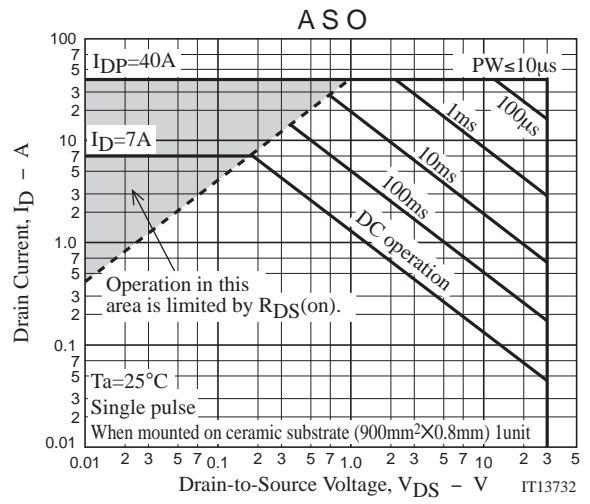
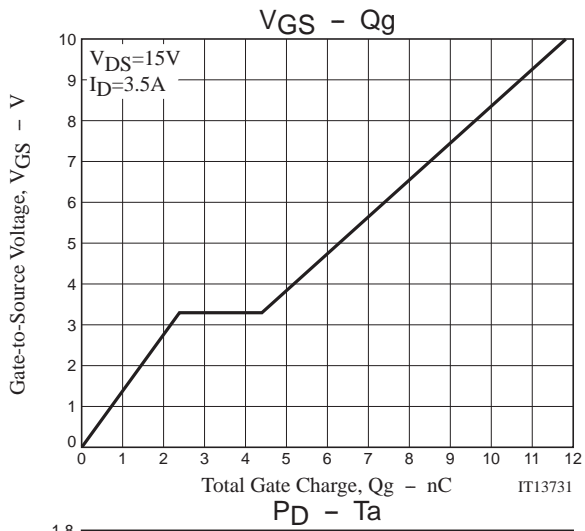
Switching Time Test Circuit



Ordering Information

Device	Package	Shipping	memo
ECH8659-TL-H	ECH8	3,000pcs./reel	Pb Free and Halogen Free





Embossed Taping Specification

ECH8659-TL-H

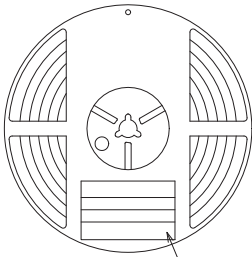
1. Packing Format

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)

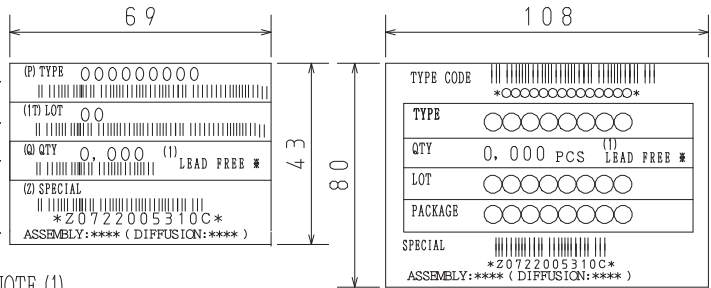
Outer box label
It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.

Packing method



Reel label

Type No.
LOT No.
Quantity
Origin



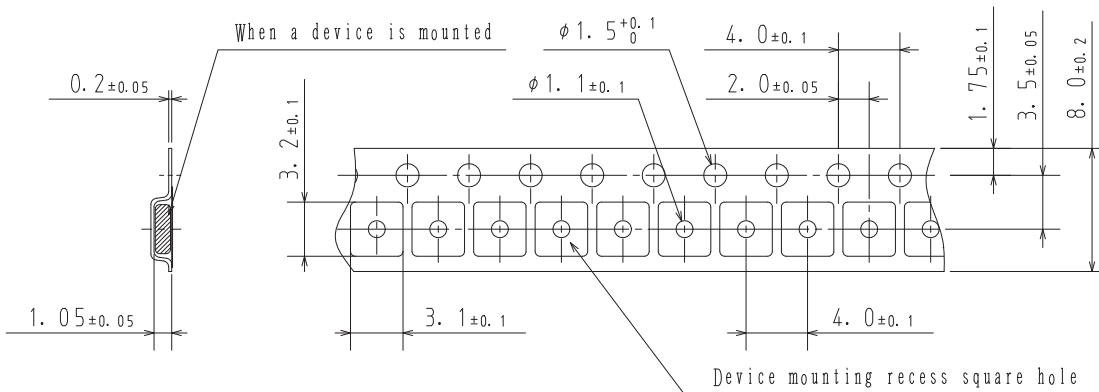
NOTE (1)

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

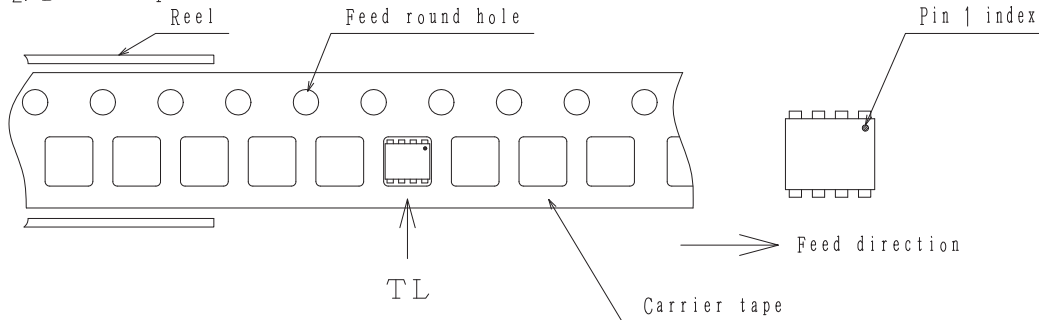
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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

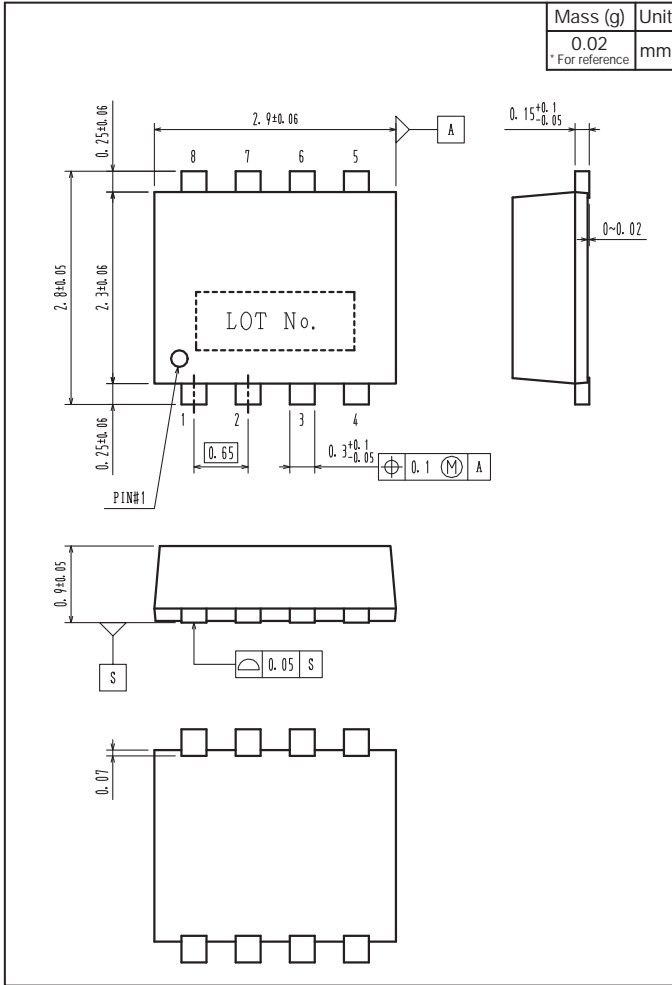


2-2. Device placement direction

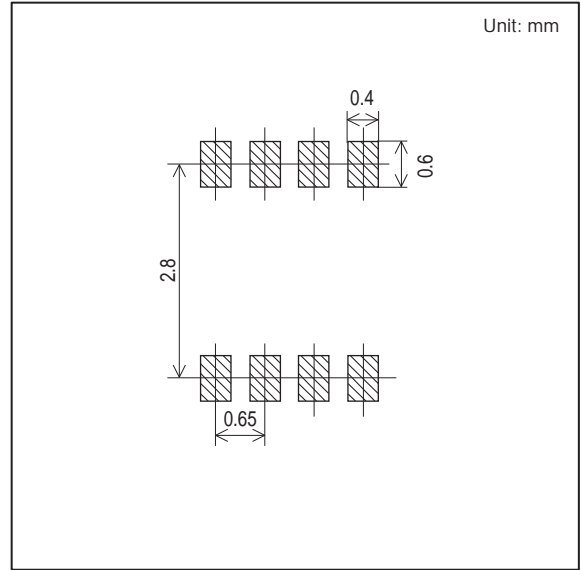


Those with pin 1 index on the feed hole side.....TL

Outline Drawing
ECH8659-TL-H



Land Pattern Example



Note on usage : Since the ECH8659 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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