



ECH8657 — General-Purpose Switching Device Applications

N-Channel Silicon MOSFET

Features

- 4V drive
- Halogen free compliance
- Protection diode in

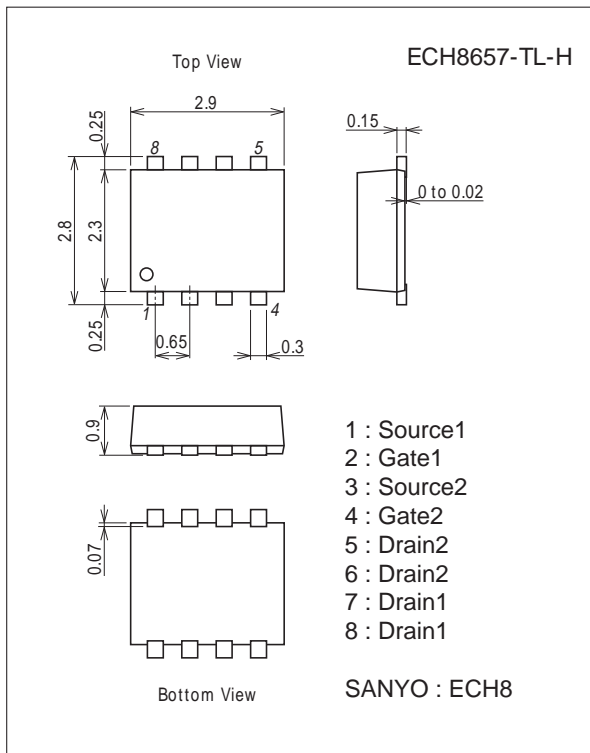
Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V _{DSS}		35	V
Gate-to-Source Voltage	V _{GSS}		±20	V
Drain Current (DC)	I _D		4.5	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	30	A
Allowable Power Dissipation	P _D	When mounted on ceramic substrate (1200mm ² ×0.8mm) 1unit	1.3	W
Total Dissipation	P _T	When mounted on ceramic substrate (1200mm ² ×0.8mm)	1.5	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Package Dimensions

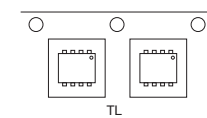
unit : mm (typ)
7011A-001



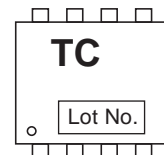
Product & Package Information

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

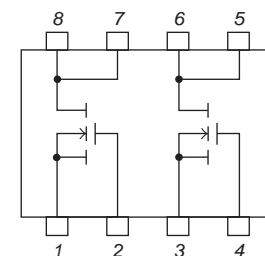
Packing Type : TL



Marking



Electrical Connection

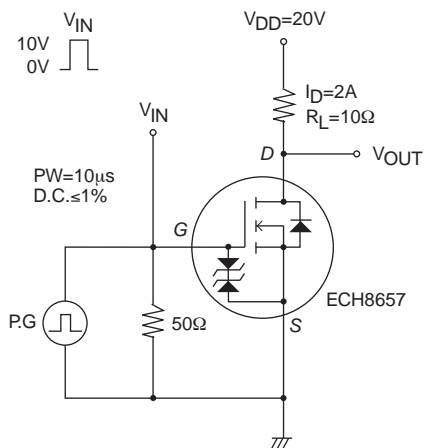


ECH8657

Electrical Characteristics at Ta=25°C

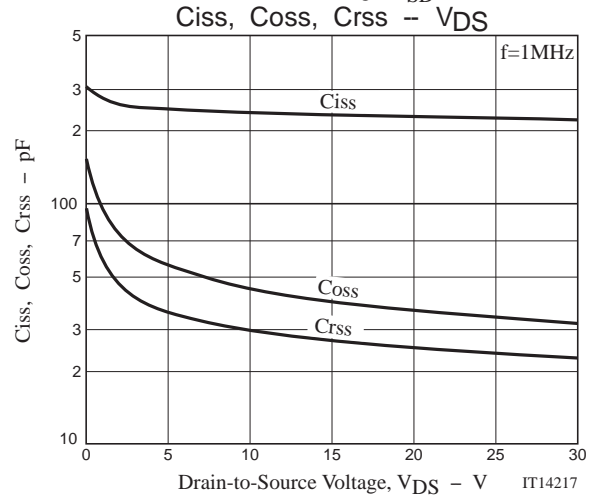
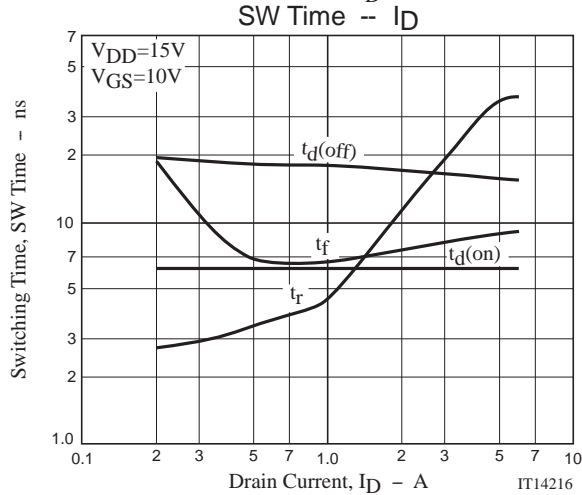
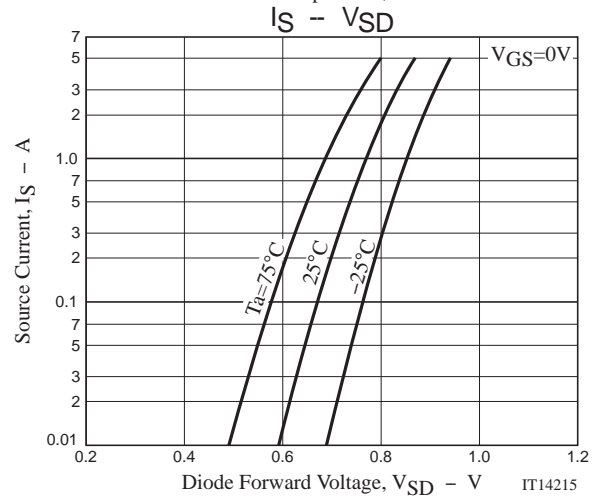
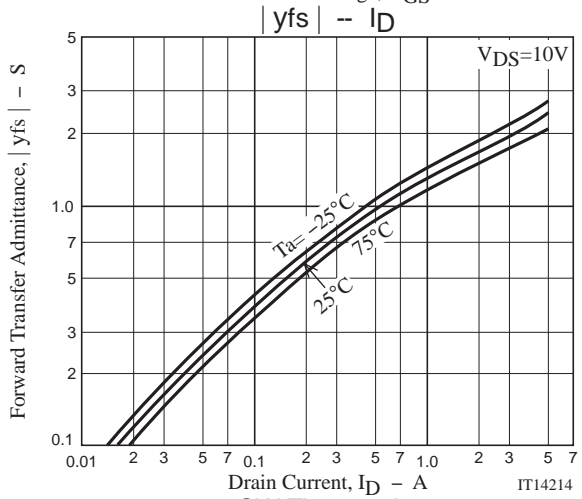
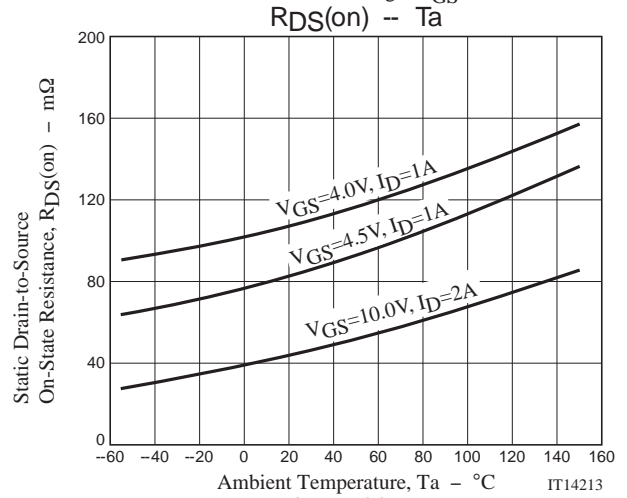
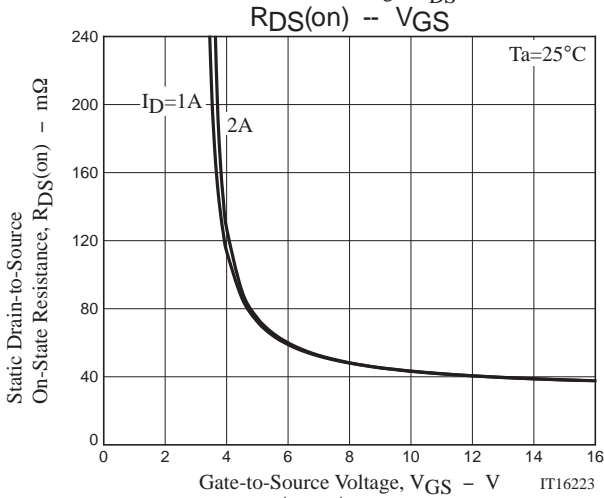
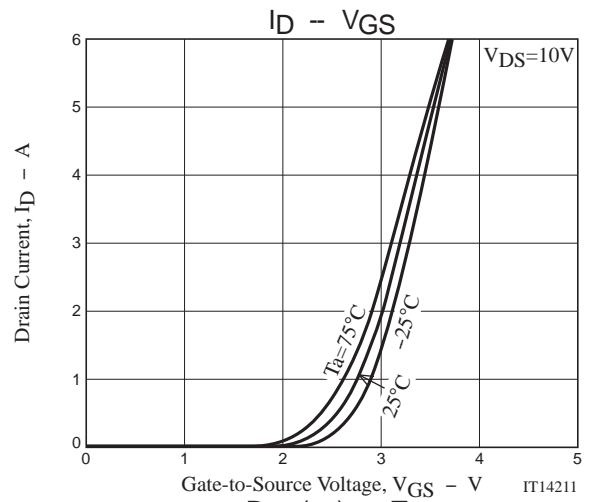
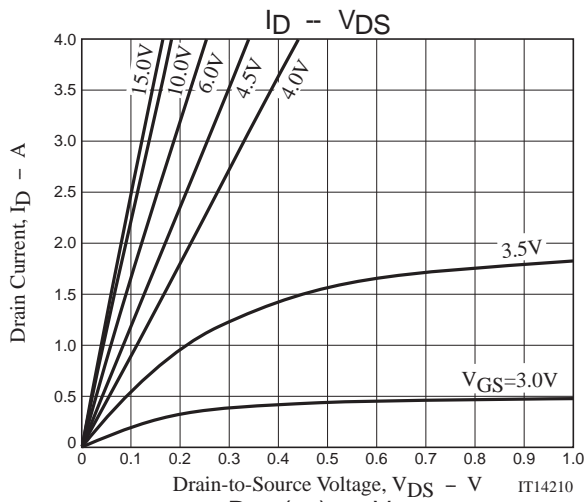
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	35			V
Zero-Gate Voltage Drain Current	IDSS	VDS=35V, VGS=0V			1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	1.2		2.6	V
Forward Transfer Admittance	yfs	VDS=10V, ID=2A		1.66		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=2A, VGS=10V		45	59	mΩ
	RDS(on)2	ID=1A, VGS=4.5V		85	119	mΩ
	RDS(on)3	ID=1A, VGS=4V		110	155	mΩ
Input Capacitance	Ciss	VDS=20V, f=1MHz		230		pF
Output Capacitance	Coss			37		pF
Reverse Transfer Capacitance	Crss			25		pF
Turn-ON Delay Time	td(on)		See specified Test Circuit.		6	
Rise Time	tr			11		ns
Turn-OFF Delay Time	td(off)			17		ns
Fall Time	tf			9		ns
Total Gate Charge	Qg	VDS=20V, VGS=10V, ID=4.5A			4.6	
Gate-to-Source Charge	Qgs			1.0		nC
Gate-to-Drain "Miller" Charge	Qgd			1.0		nC
Diode Forward Voltage	VSD		IS=4.5A, VGS=0V		0.85	1.2

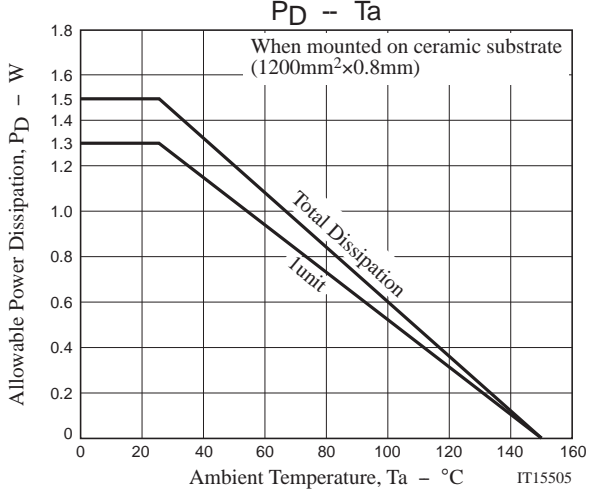
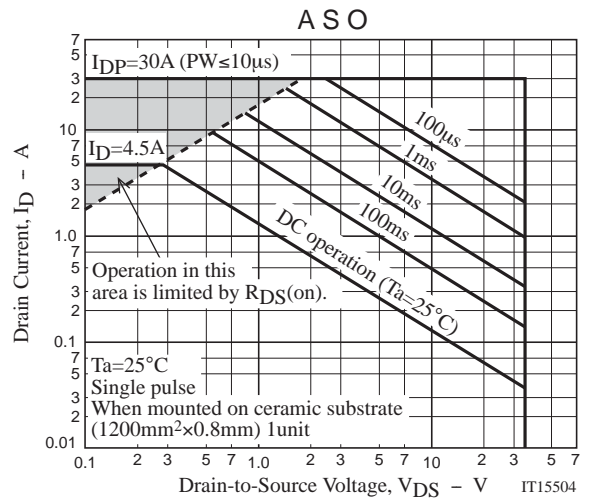
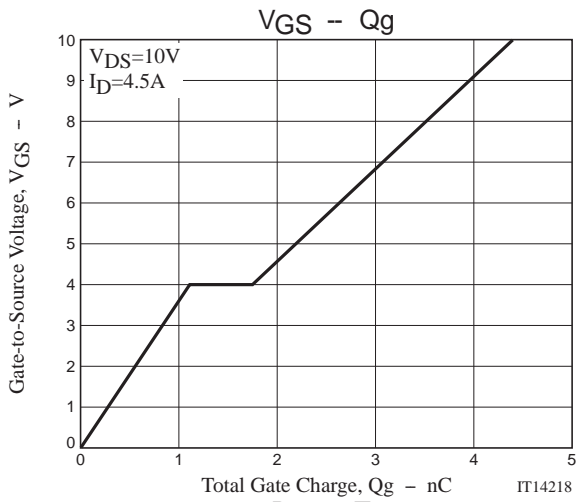
Switching Time Test Circuit



Ordering Information

Device	Package	Shipping	memo
ECH8657-TL-H	ECH8	3,000pcs./reel	Pb Free and Halogen Free





Embossed Taping Specification

ECH8657-TL-H

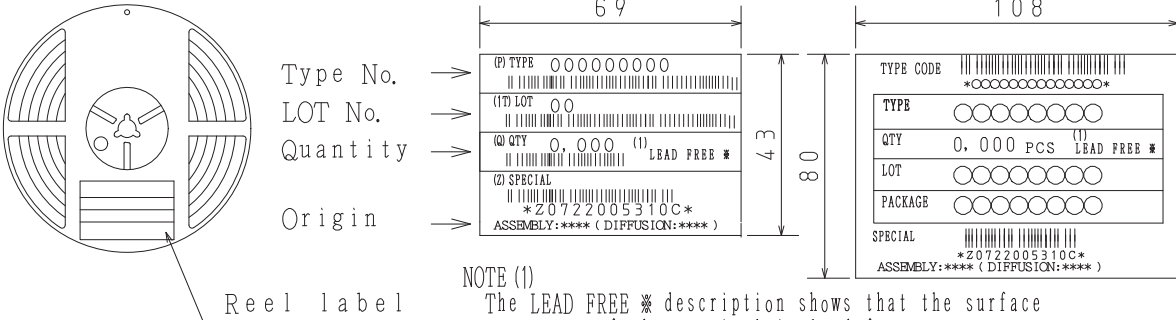
1. Packing Format

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, 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.

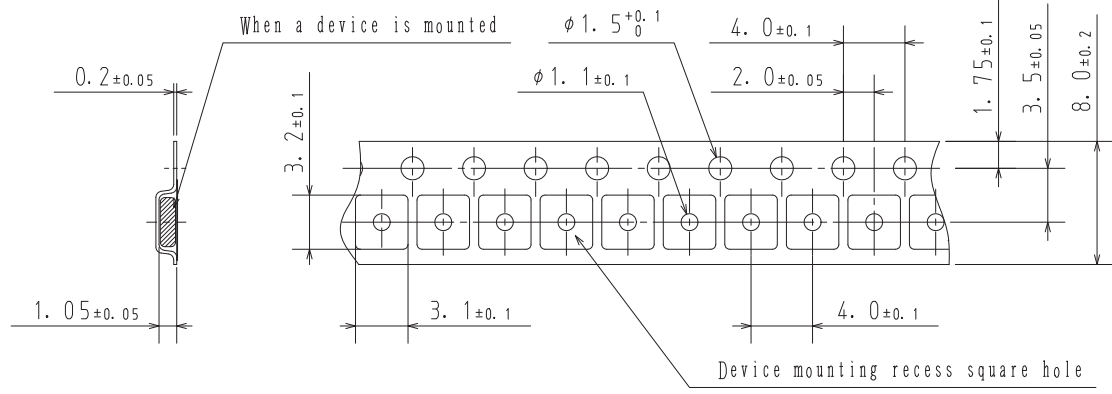


NOTE (1)
The LEAD FREE * description shows that the surface treatment of the terminal is lead free.

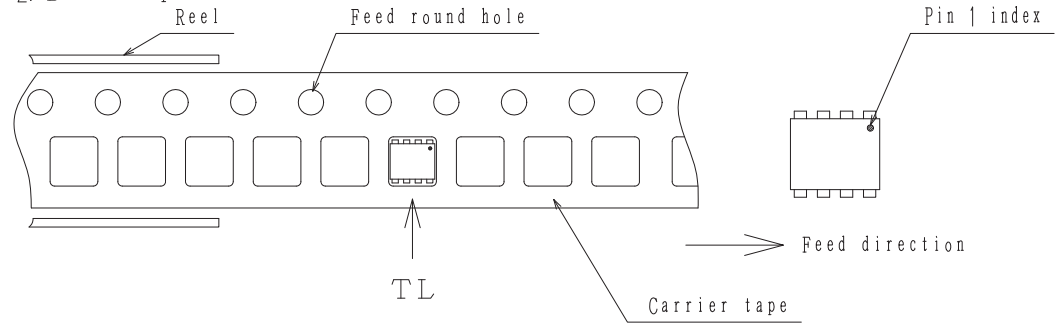
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction

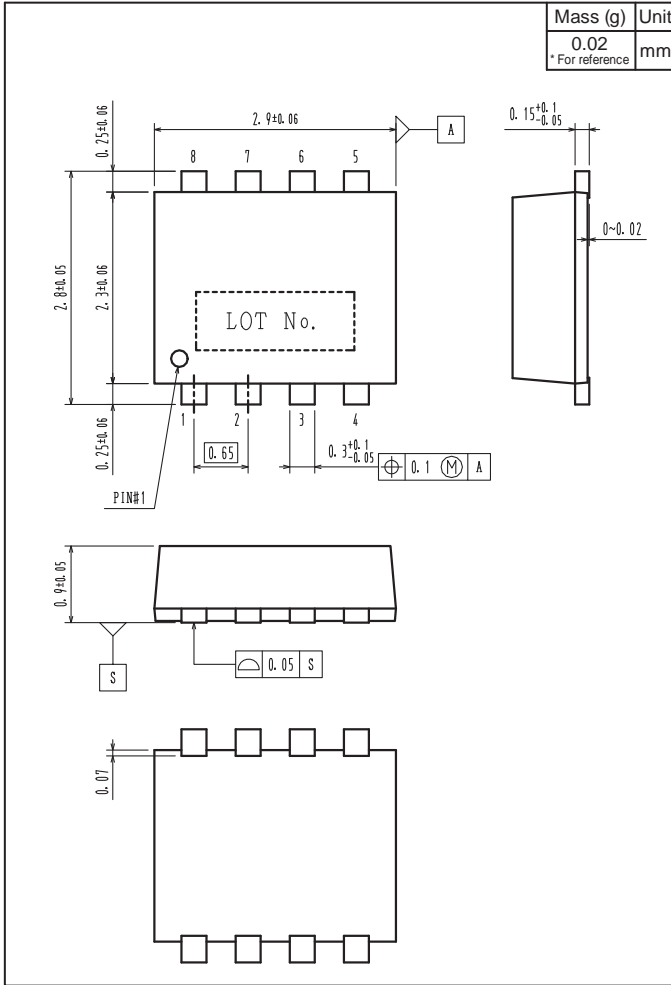


Those with pin 1 index on the feed hole side.....TL

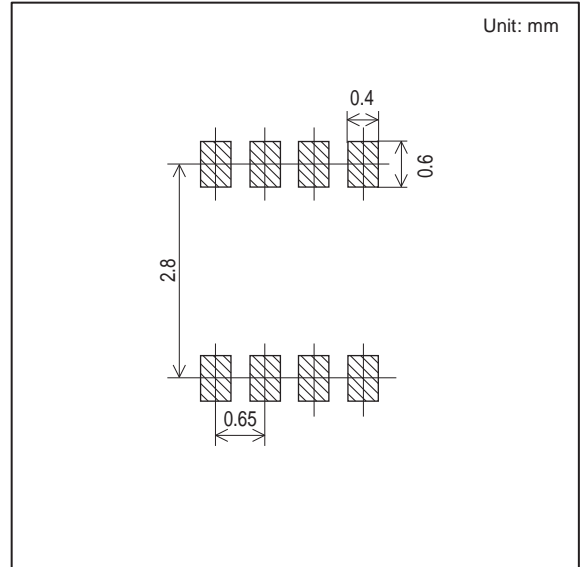
ECH8657

Outline Drawing

ECH8657-TL-H



Land Pattern Example



Note on usage : Since the ECH8657 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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