



ECH8656 — N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS(on)1}=13m\Omega$ (typ.)
- Halogen free compliance
- Protection diode in
- 1.8V drive
- Nch + Nch MOSFET

Specifications

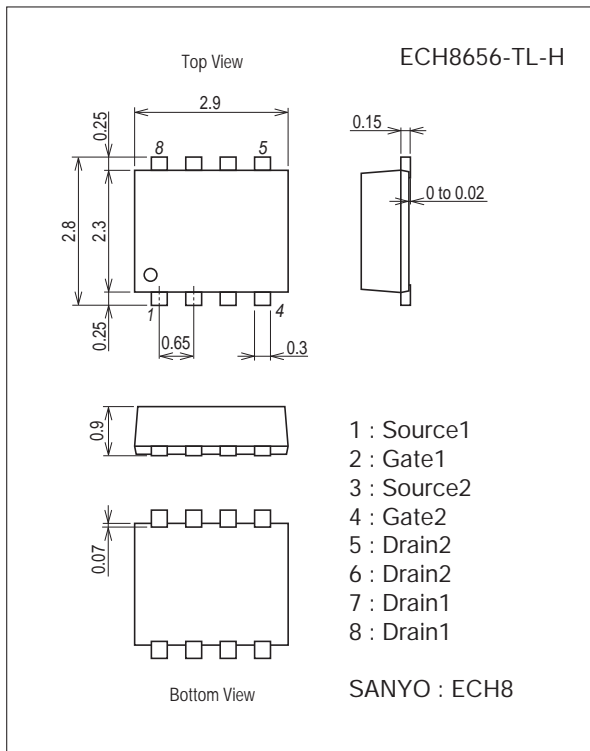
Absolute Maximum Ratings at $T_a=25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		20	V
Gate-to-Source Voltage	V_{GSS}		± 10	V
Drain Current (DC)	I_D		7.5	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	40	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (900mm ² x0.8mm) 1unit	1.3	W
Total Dissipation	P_T	When mounted on ceramic substrate (900mm ² x0.8mm)	1.5	W
Channel Temperature	T_{ch}		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$

Package Dimensions

unit : mm (typ)

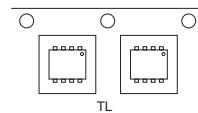
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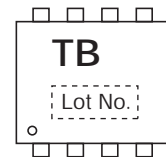
Product & Package Information

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

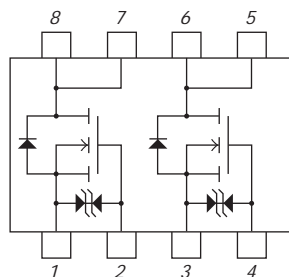
Packing Type : TL



Marking



Electrical Connection

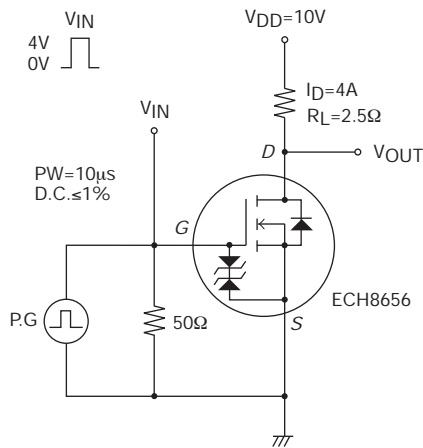


ECH8656

Electrical Characteristics at Ta=25°C

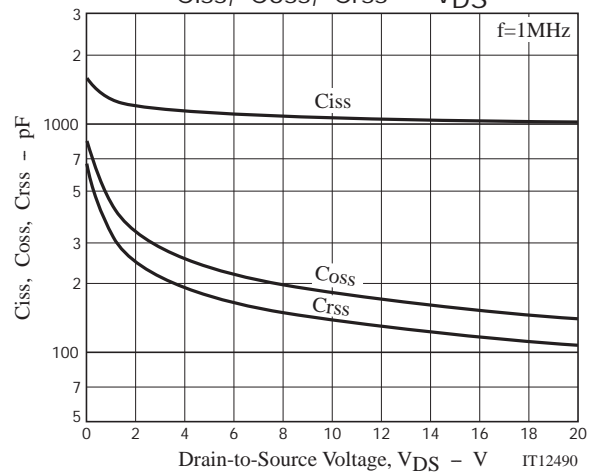
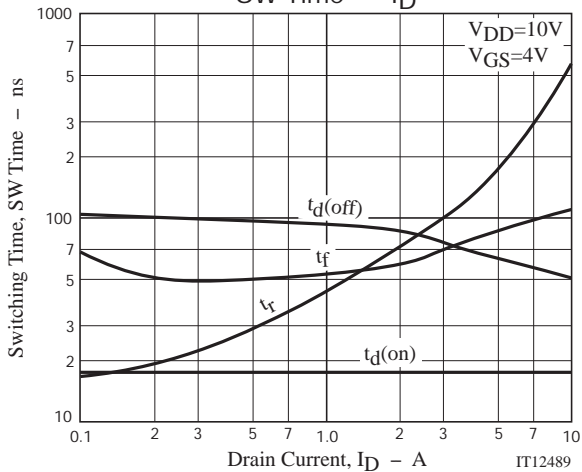
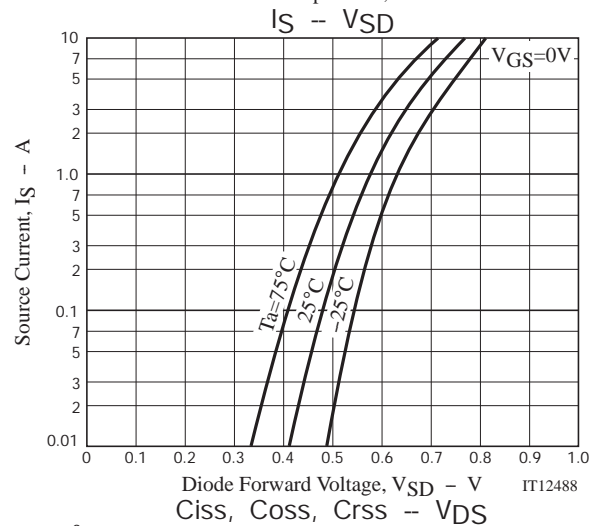
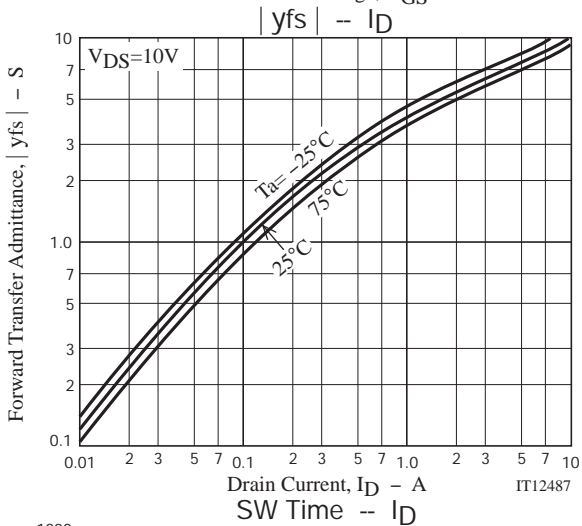
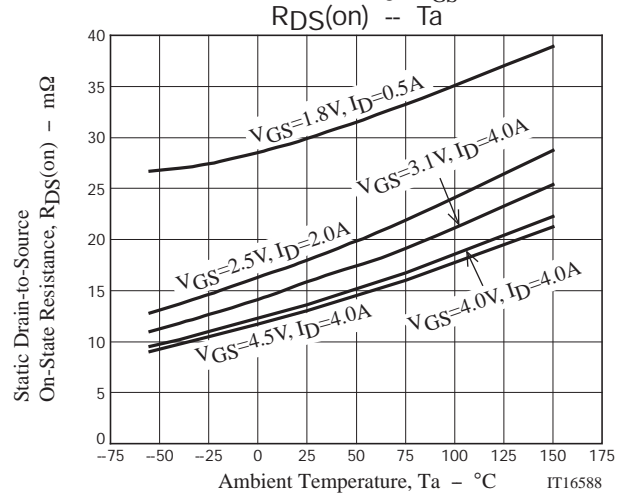
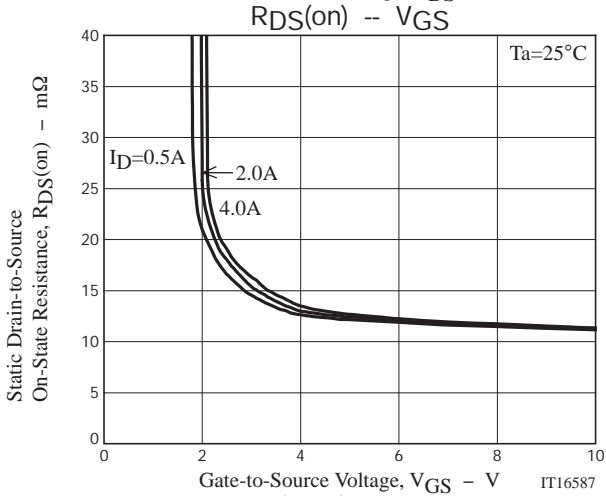
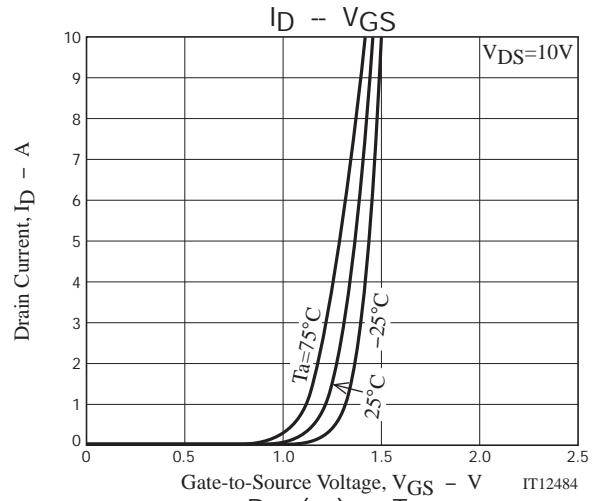
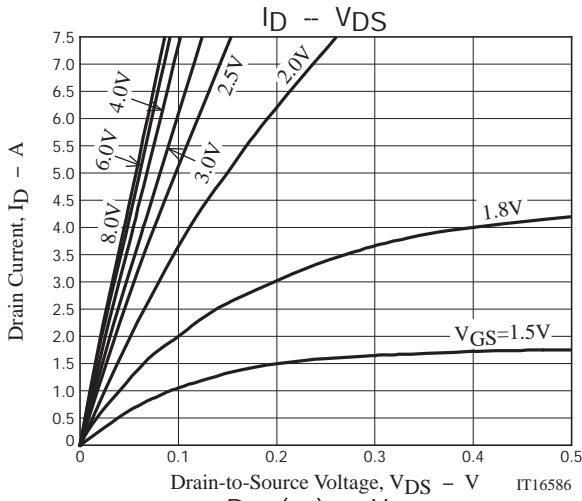
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	20			V
Zero-Gate Voltage Drain Current	IDSS	VDS=20V, VGS=0V			1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±8V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	0.5		1.3	V
Forward Transfer Admittance	yfs	VDS=10V, ID=4A		7		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=4A, VGS=4.5V	9	13	17	mΩ
	RDS(on)2	ID=4A, VGS=4.0V	9.4	13.5	18	mΩ
	RDS(on)3	ID=4A, VGS=3.1V	11	16	22	mΩ
	RDS(on)4	ID=2A, VGS=2.5V	12.5	18	26	mΩ
	RDS(on)5	ID=0.5A, VGS=1.8V	17	30	48	mΩ
Input Capacitance	Ciss	VDS=10V, f=1MHz		1060		pF
Output Capacitance	Coss			180		pF
Reverse Transfer Capacitance	Crss			135		pF
Turn-ON Delay Time	td(on)			17.5		ns
Rise Time	tr	See specified Test Circuit.		120		ns
Turn-OFF Delay Time	td(off)			68		ns
Fall Time	tf			80		ns
Total Gate Charge	Qg	VDS=10V, VGS=4.5V, ID=7.5A		10.8		nC
Gate-to-Source Charge	Qgs			2.1		nC
Gate-to-Drain "Miller" Charge	Qgd			2.9		nC
Diode Forward Voltage	VSD	IS=7.5A, VGS=0V		0.74	1.2	V

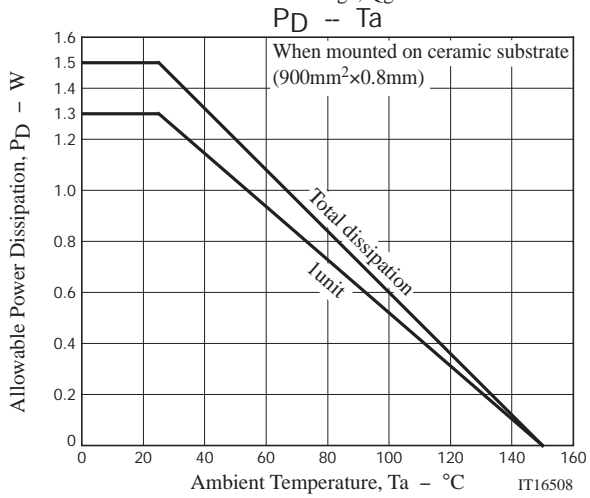
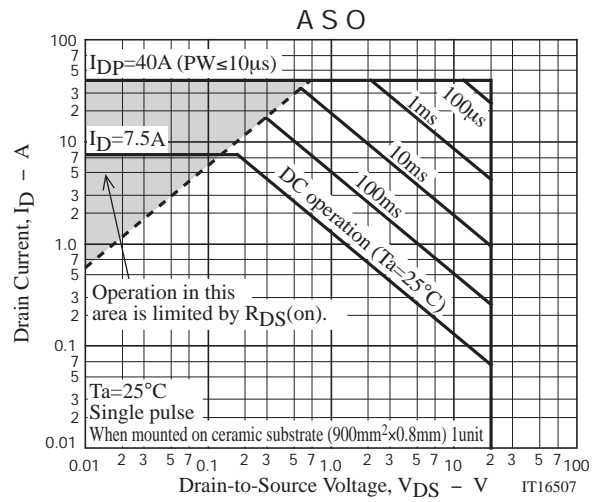
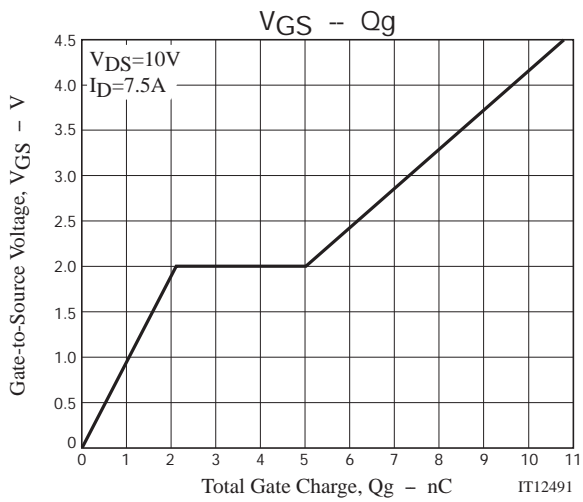
Switching Time Test Circuit



Ordering Information

Device	Package	Shipping	memo
ECH8656-TL-H	ECH8	3,000pcs./reel	Pb Free and Halogen Free





Embossed Taping Specification

ECH8656-TL-H

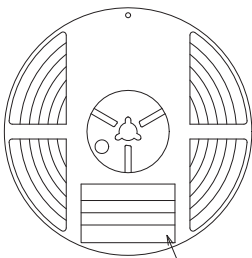
1. Packing Format

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

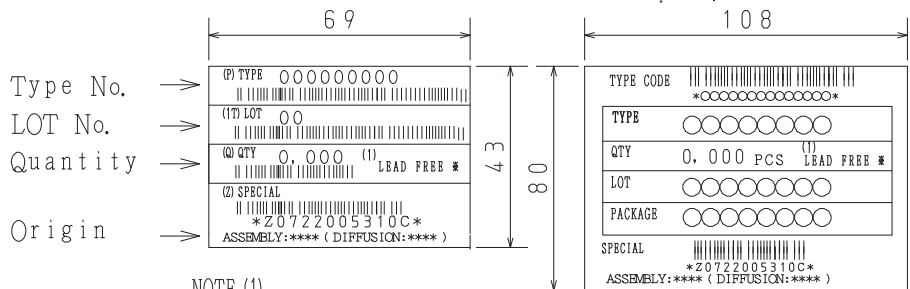
Reel label, Inner box label
(unit :mm)

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



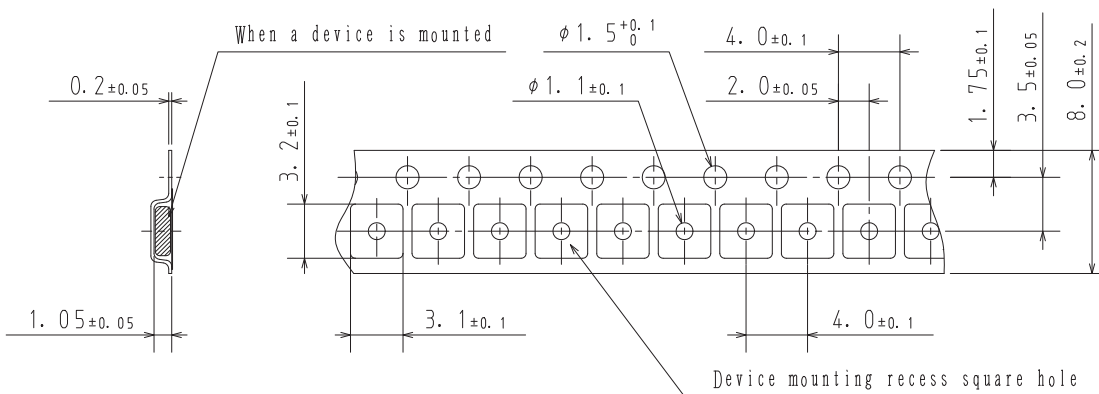
NOTE (1)

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

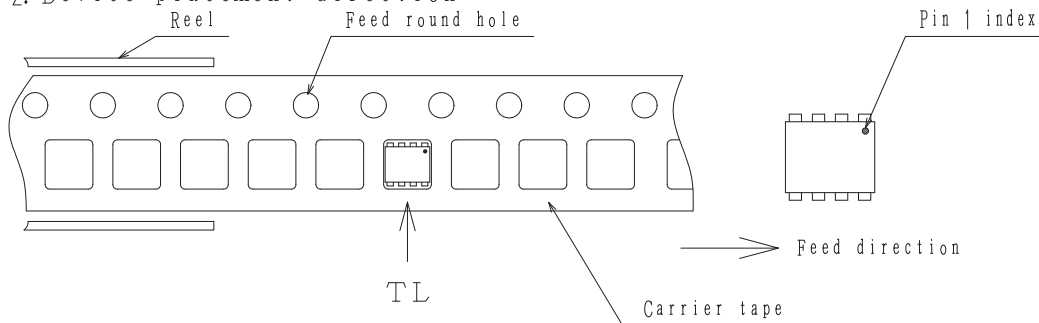
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

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
ECH8656-TL-H



Land Pattern Example



Note on usage : Since the ECH8656 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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