



ECH8660

Power MOSFET

30V, 4.5A, 59mΩ, -30V, -4.5A, 59mΩ, Complementary Dual ECH8

ON Semiconductor®

<http://onsemi.com>

Features

- The ECH8660 incorporates an N-channel MOSFET and a P-channel MOSFET that feature low ON-resistance and high-speed switching, thereby enabling high-density mounting
- 4V drive
- Halogen free compliance

Specifications

Absolute Maximum Ratings at Ta=25°C

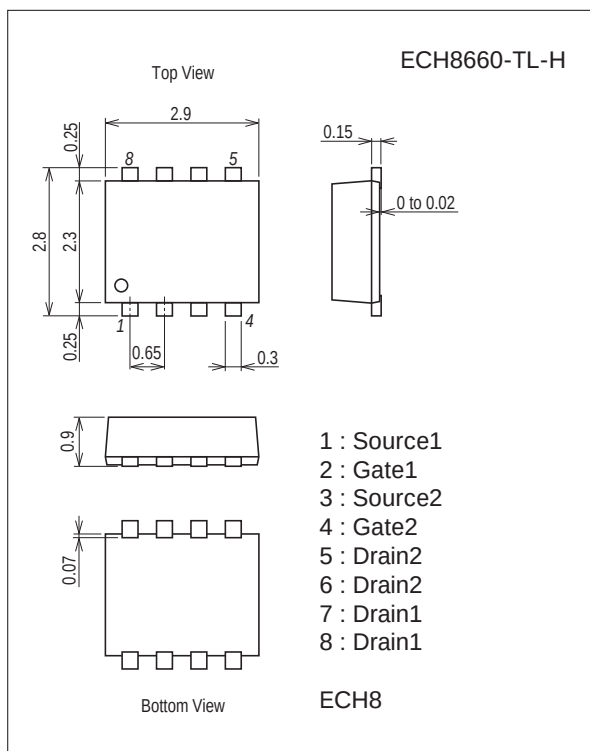
Parameter	Symbol	Conditions	N-channel	P-channel	Unit
Drain-to-Source Voltage	V _{DSS}		30	-30	V
Gate-to-Source Voltage	V _{GSS}		±20	±20	V
Drain Current (DC)	I _D		4.5	-4.5	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	30	-30	A
Allowable Power Dissipation	P _D	When mounted on ceramic substrate (1200mm²×0.8mm) 1unit	1.3		W
Total Dissipation	P _T	When mounted on ceramic substrate (1200mm²×0.8mm)	1.5		W
Channel Temperature	T _{ch}		150		°C
Storage Temperature	T _{stg}		-55 to +150		°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

unit : mm (typ)

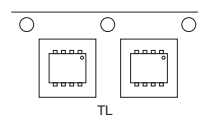
7011A-001



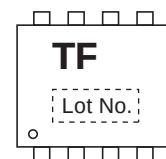
Product & Package Information

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

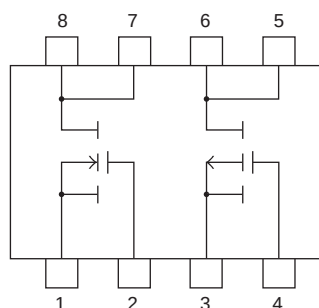
Packing Type : TL



Marking



Electrical Connection



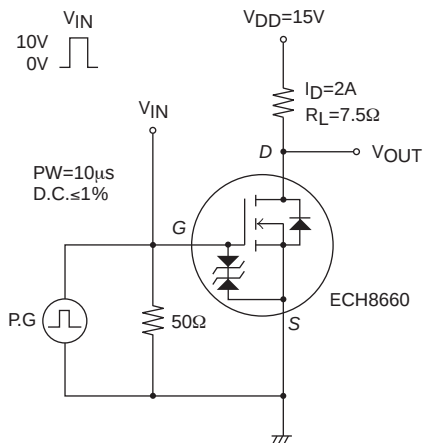
ECH8660

Electrical Characteristics at Ta=25°C

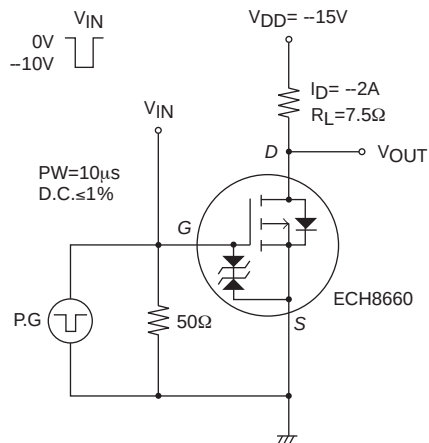
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[N-channel]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	30			V
Zero-Gate Voltage Drain Current	IDSS	VDS=30V, VGS=0V			1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	1.2		2.6	V
Forward Transfer Admittance	yfs	VDS=10V, ID=2A	1	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=10V, f=1MHz		240		pF
Output Capacitance	Coss	VDS=10V, f=1MHz		45		pF
Reverse Transfer Capacitance	Crss	VDS=10V, f=1MHz		30		pF
Turn-ON Delay Time	tD(on)	See specified Test Circuit.		6.2		ns
Rise Time	tr	See specified Test Circuit.		11		ns
Turn-OFF Delay Time	tD(off)	See specified Test Circuit.		17		ns
Fall Time	tf	See specified Test Circuit.		7.5		ns
Total Gate Charge	Qg	VDS=10V, VGS=10V, ID=4.5A		4.4		nC
Gate-to-Source Charge	Qgs	VDS=10V, VGS=10V, ID=4.5A		1.1		nC
Gate-to-Drain “Miller” Charge	Qgd	VDS=10V, VGS=10V, ID=4.5A		0.64		nC
Diode Forward Voltage	VSD	IS=4.5A, VGS=0V		0.84	1.2	V
[P-channel]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=−1mA, VGS=0V	−30			V
Zero-Gate Voltage Drain Current	IDSS	VDS=−30V, 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		−2.3	V
Forward Transfer Admittance	yfs	VDS=−10V, ID=−2A	2.5	4.2		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		71	100	mΩ
	RDS(on)3	ID=−1A, VGS=−4V		82	115	mΩ
Input Capacitance	Ciss	VDS=−10V, f=1MHz		430		pF
Output Capacitance	Coss	VDS=−10V, f=1MHz		105		pF
Reverse Transfer Capacitance	Crss	VDS=−10V, f=1MHz		75		pF
Turn-ON Delay Time	tD(on)	See specified Test Circuit.		7.5		ns
Rise Time	tr	See specified Test Circuit.		26		ns
Turn-OFF Delay Time	tD(off)	See specified Test Circuit.		45		ns
Fall Time	tf	See specified Test Circuit.		35		ns
Total Gate Charge	Qg	VDS=−10V, VGS=−10V, ID=−4.5A		10		nC
Gate-to-Source Charge	Qgs	VDS=−10V, VGS=−10V, ID=−4.5A		2.0		nC
Gate-to-Drain “Miller” Charge	Qgd	VDS=−10V, VGS=−10V, ID=−4.5A		2.5		nC
Diode Forward Voltage	VSD	IS=−4.5A, VGS=0V		−0.85	−1.2	V

Switching Time Test Circuit

[N-channel]

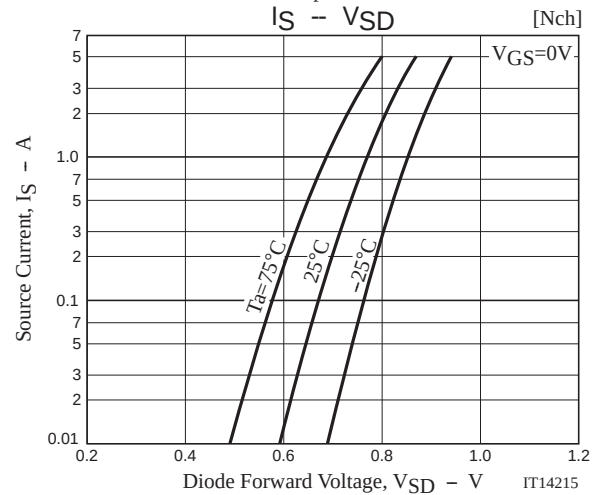
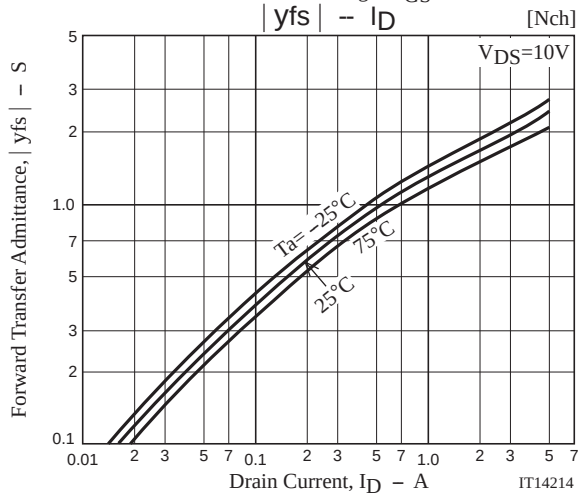
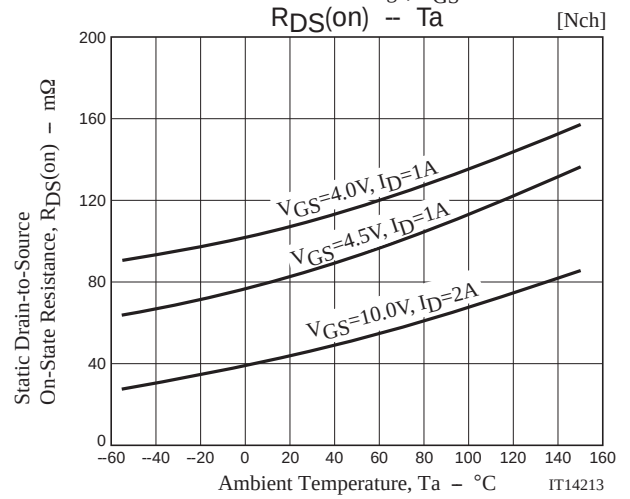
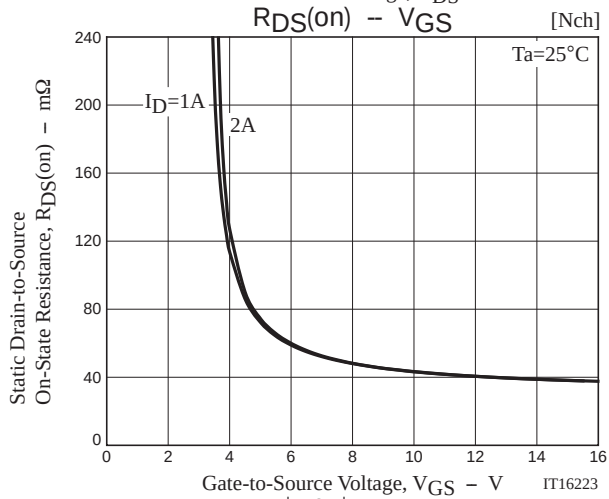
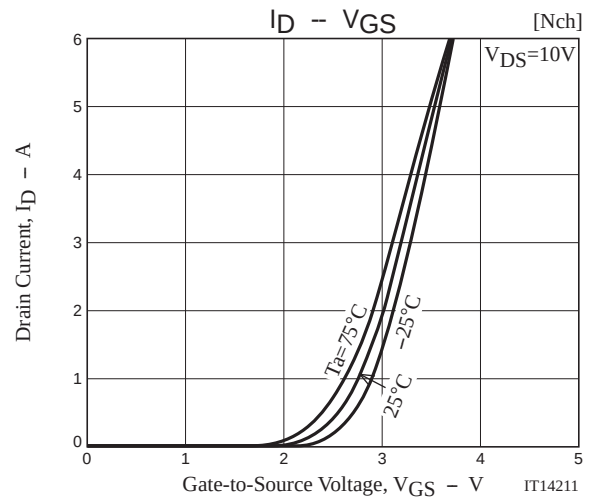
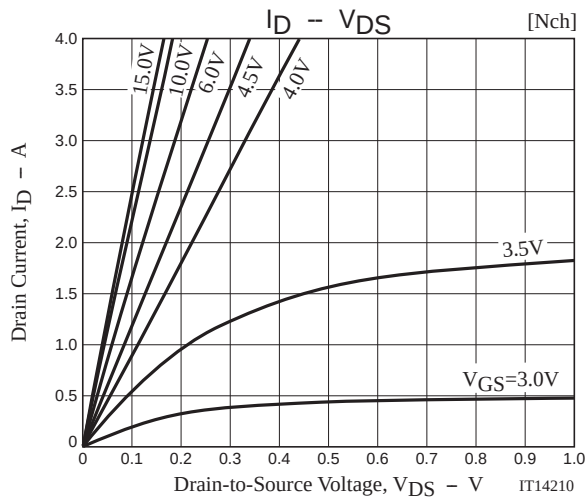


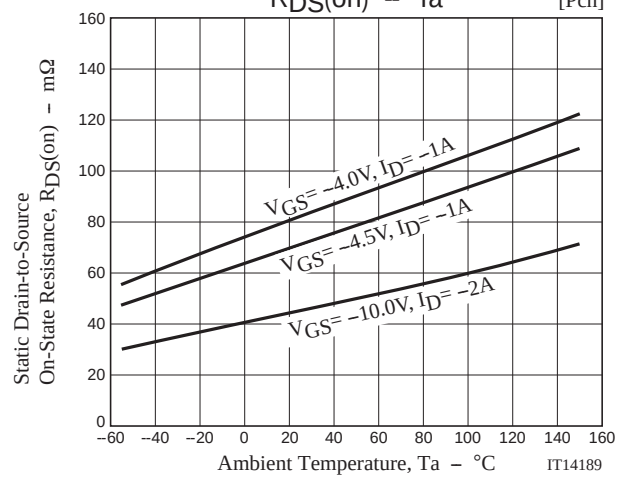
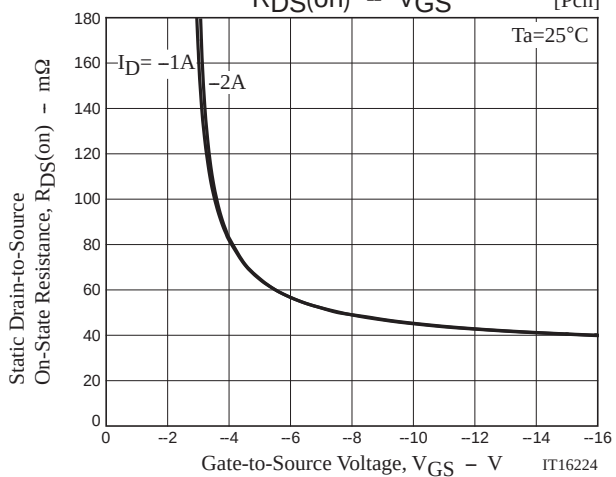
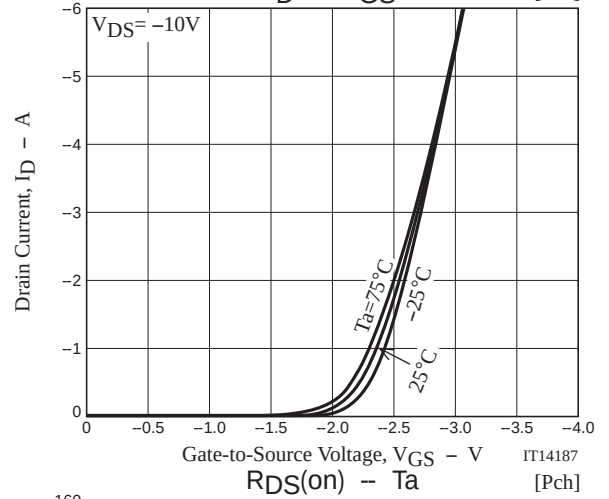
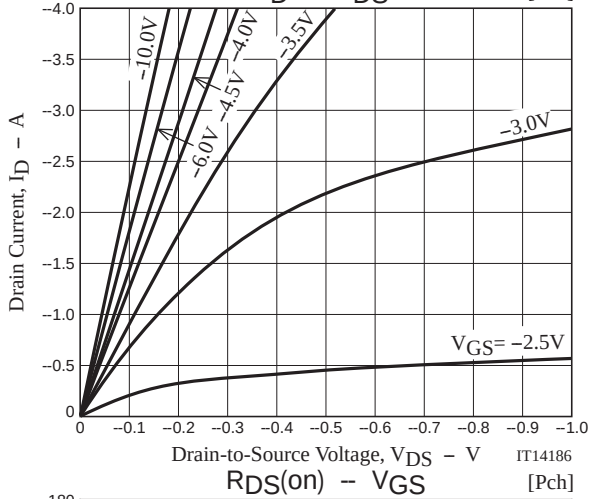
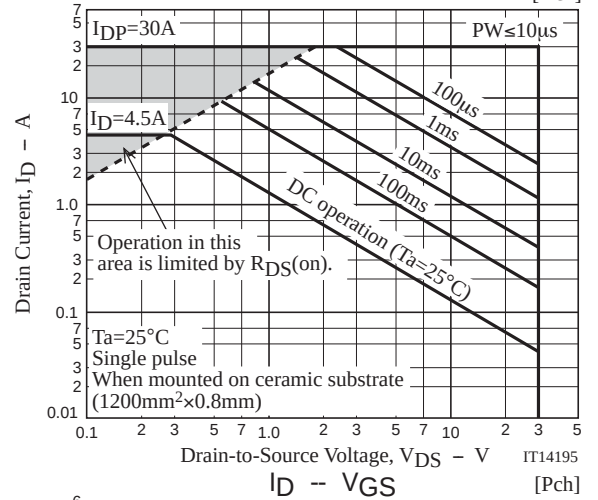
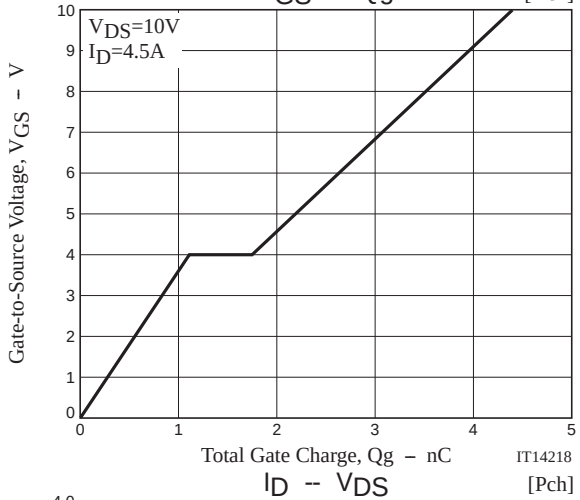
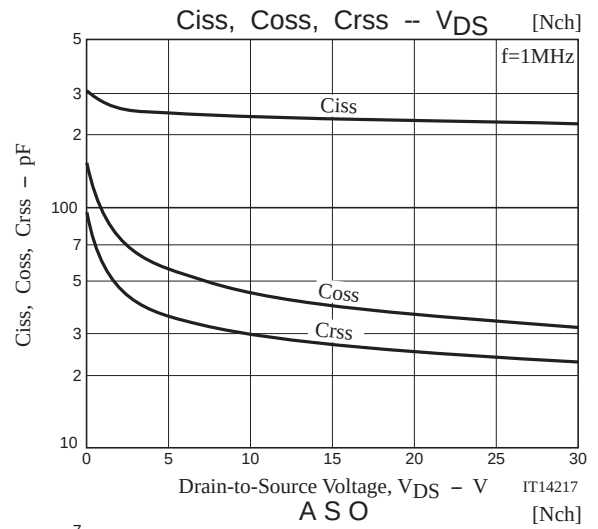
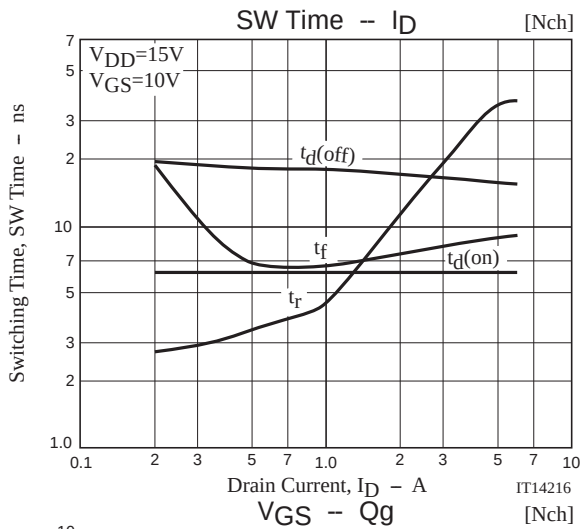
[P-channel]

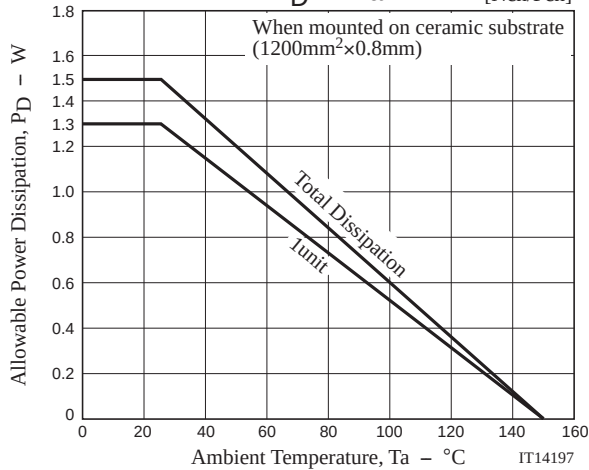
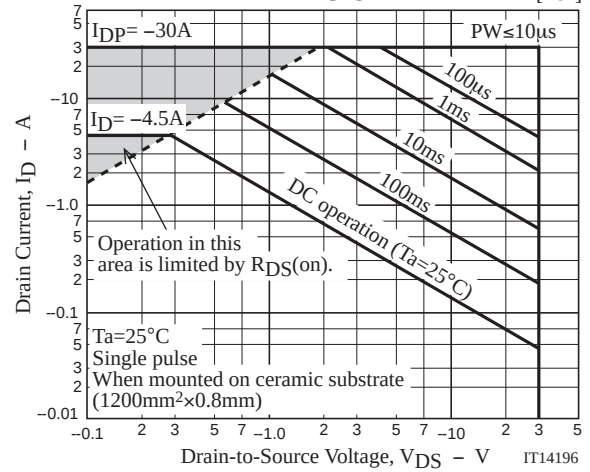
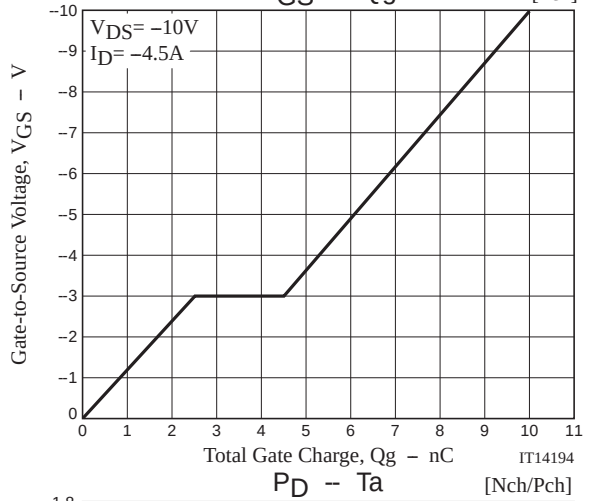
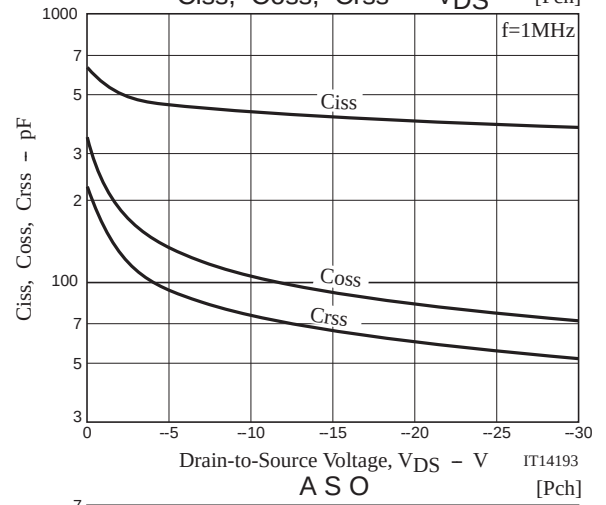
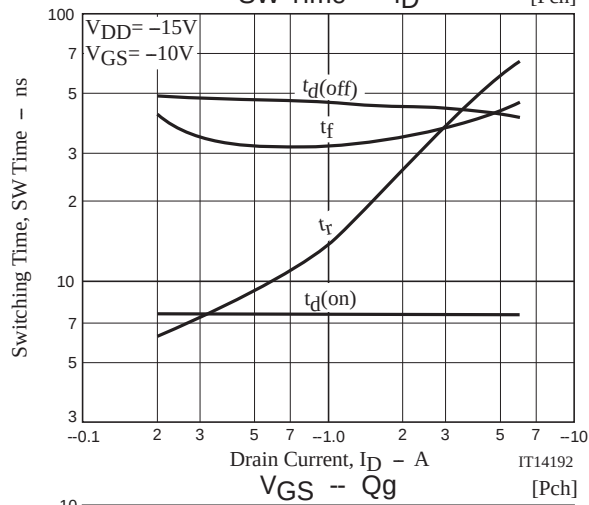
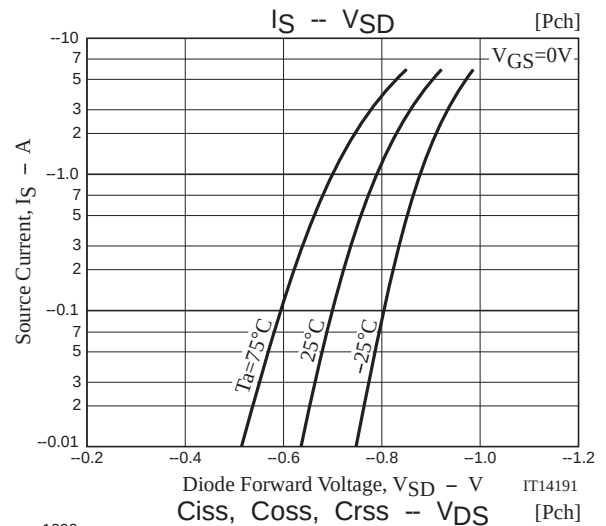
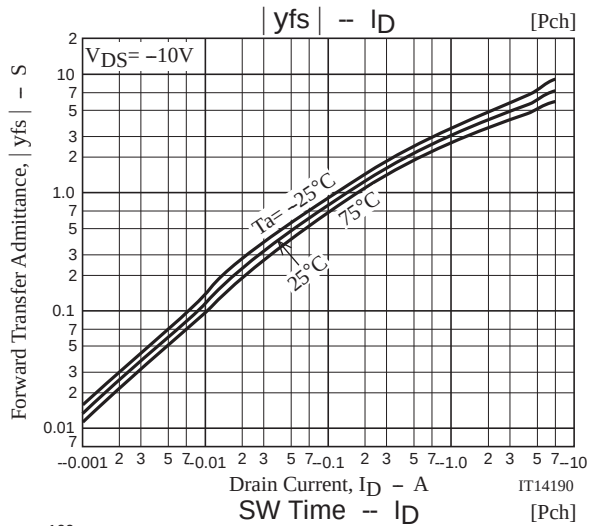


Ordering Information

Device	Package	Shipping	memo
ECH8660-TL-H	ECH8	3,000pcs./reel	Pb-Free and Halogen Free







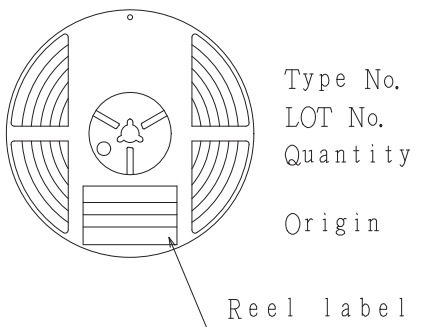
Embossed Taping Specification

ECH8660-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

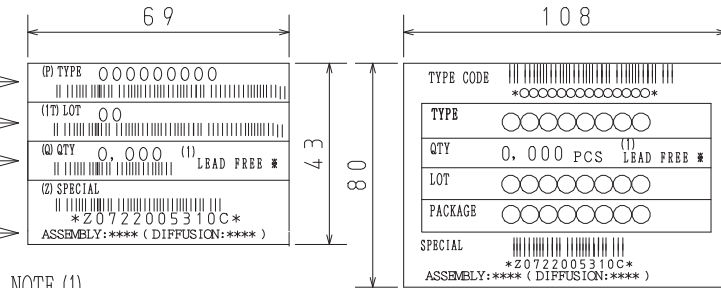
Packing method



Reel label, Inner box label
(unit:mm)

Outer box label

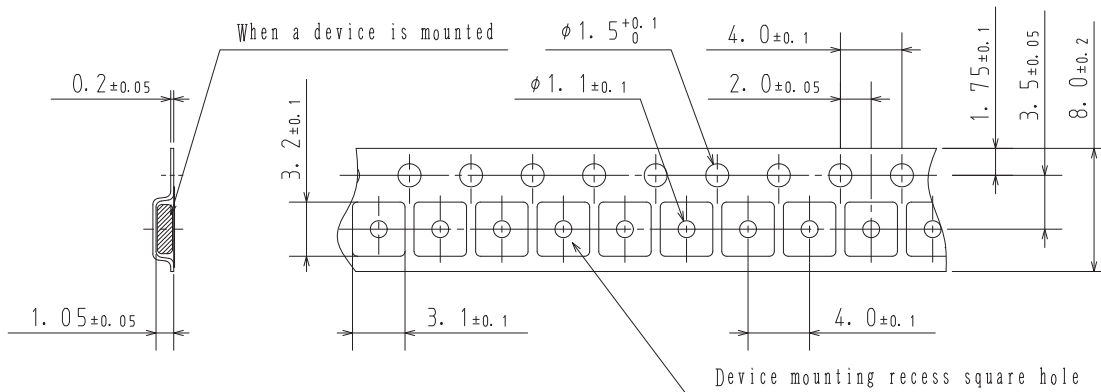
It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.



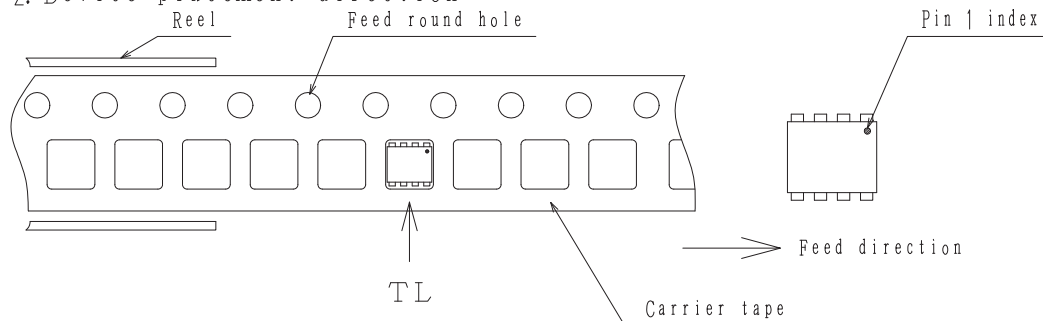
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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

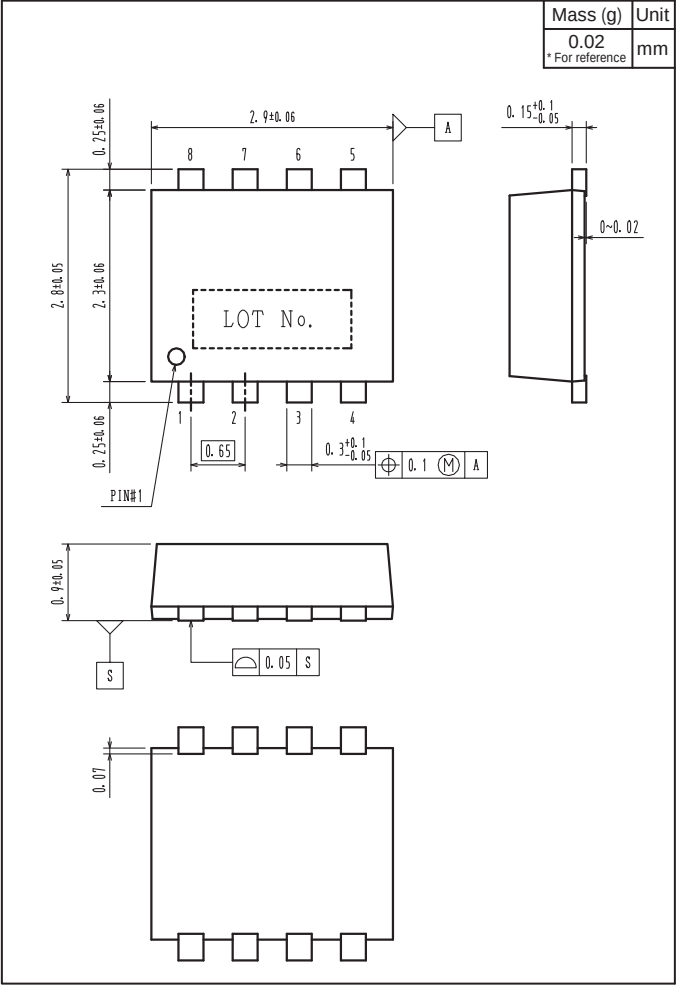


2-2. Device placement direction

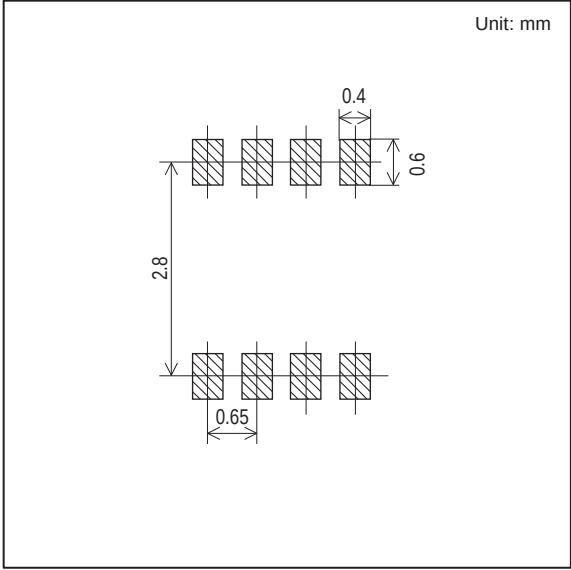


Those with pin 1 index on the feed hole side.....TL

Outline Drawing
ECH8660-TL-H



Land Pattern Example



Note on usage : Since the ECH8660 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

ON Semiconductor and the ON logo are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of SCILLC's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[ON Semiconductor:](#)

[ECH8660-S-TL-H](#)

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели,
кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: ocean@oceanchips.ru

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А