



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

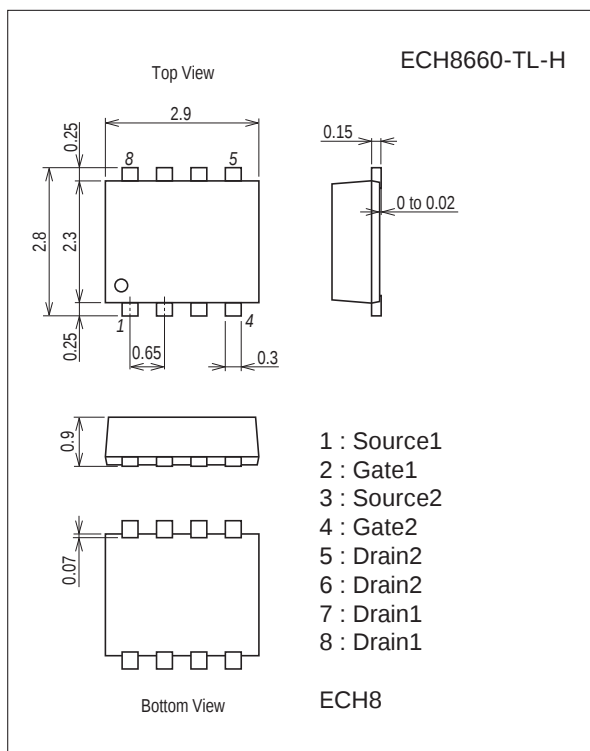
Parameter	Symbol	Conditions	N-channel	P-channel	Unit
Drain-to-Source Voltage	V_{DSS}		30	-30	V
Gate-to-Source Voltage	V_{GSS}		±20	±20	V
Drain Current (DC)	I_D		4.5	-4.5	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	30	-30	A
Allowable Power Dissipation	P_D	When mounted on ceramic 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

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)

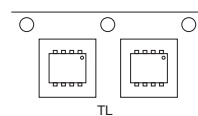
7011A-001



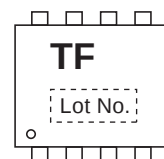
Product & Package Information

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

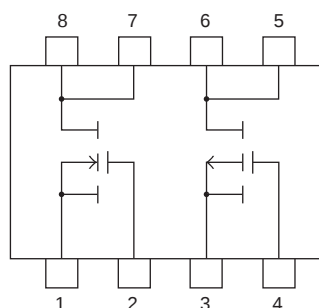
Packing Type : TL



Marking



Electrical Connection

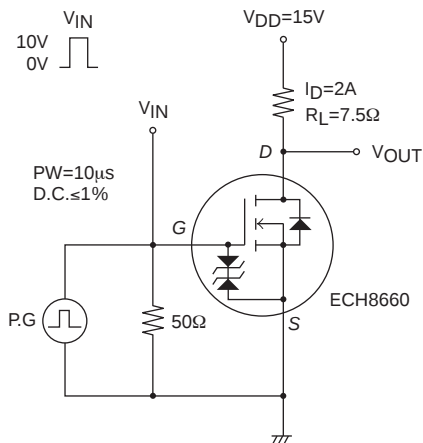


Electrical Characteristics at Ta=25°C

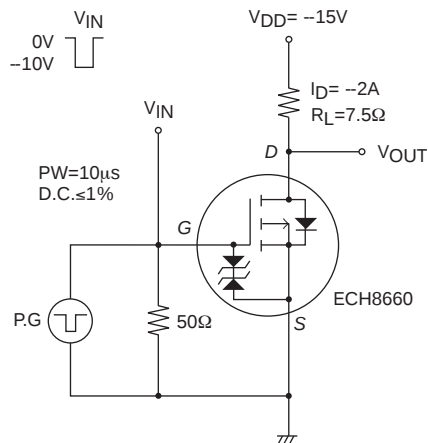
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[N-channel]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	30			V
Zero-Gate Voltage Drain Current	IDSS	VDS=30V, VGS=0V			1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	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]

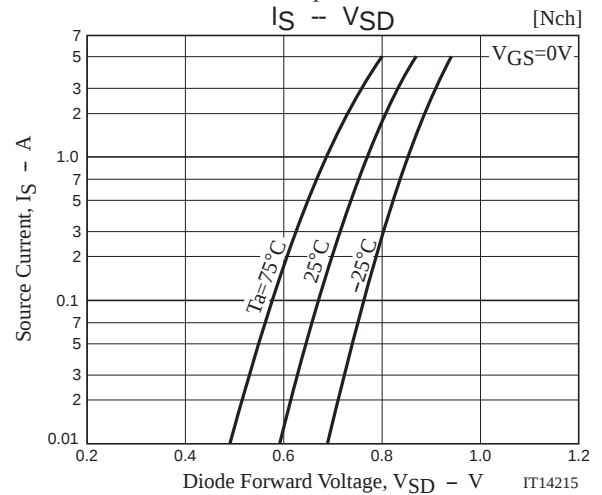
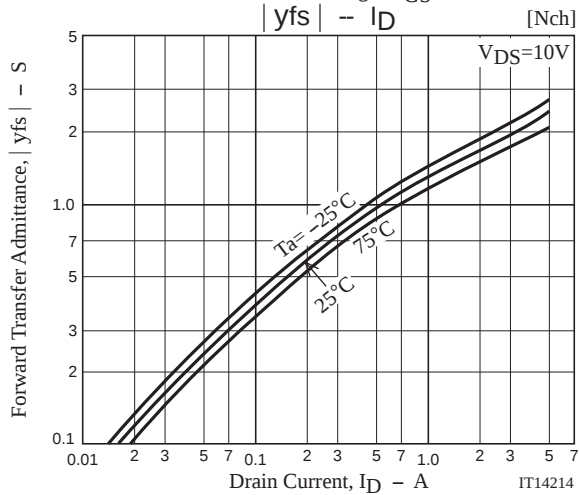
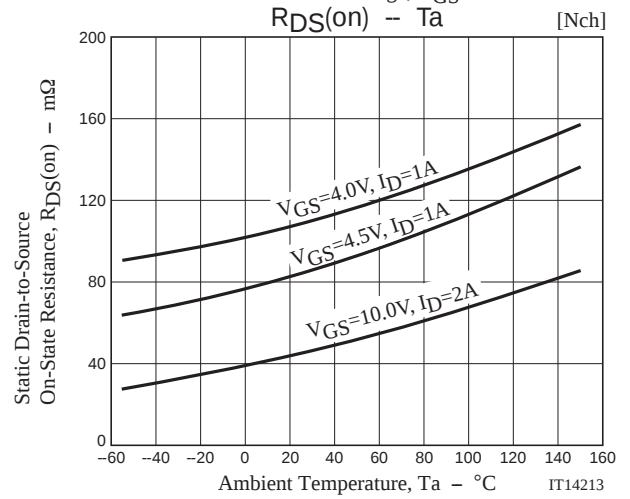
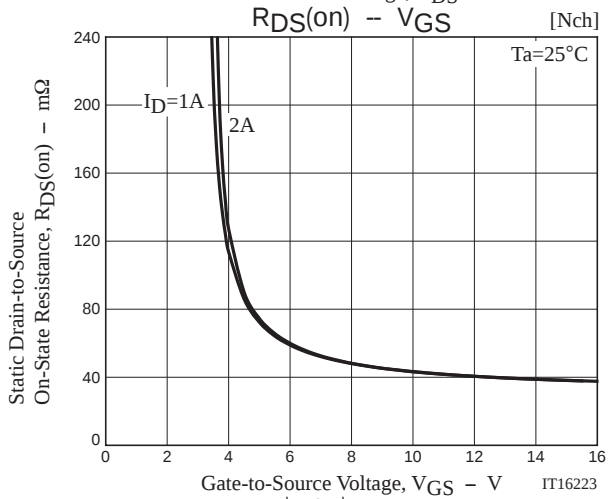
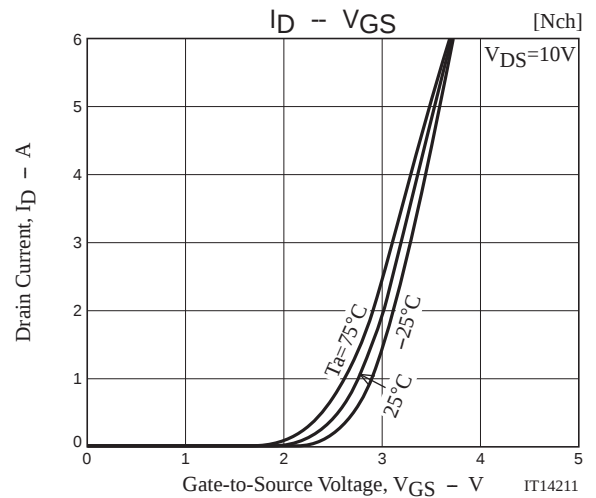
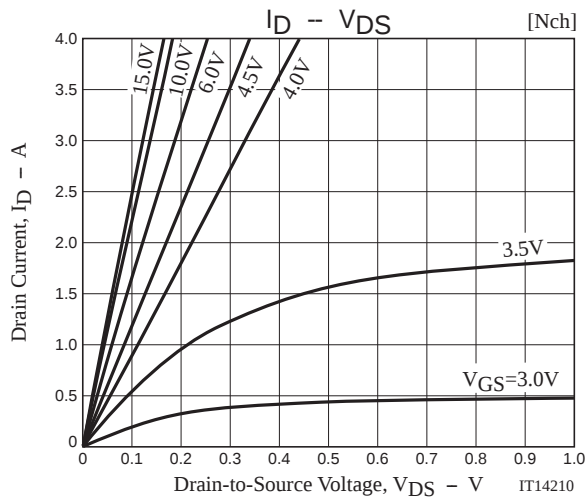


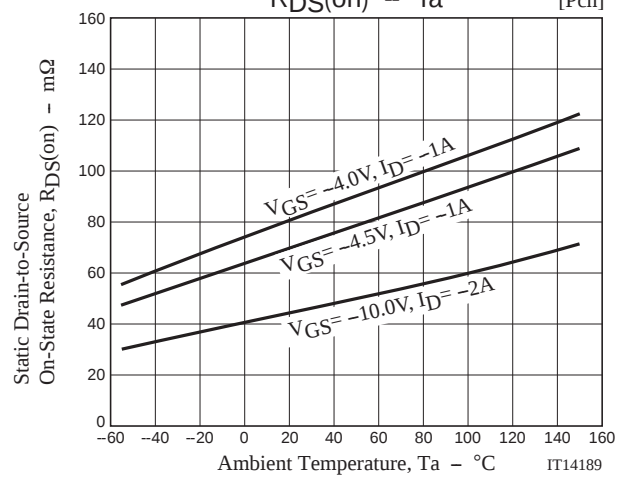
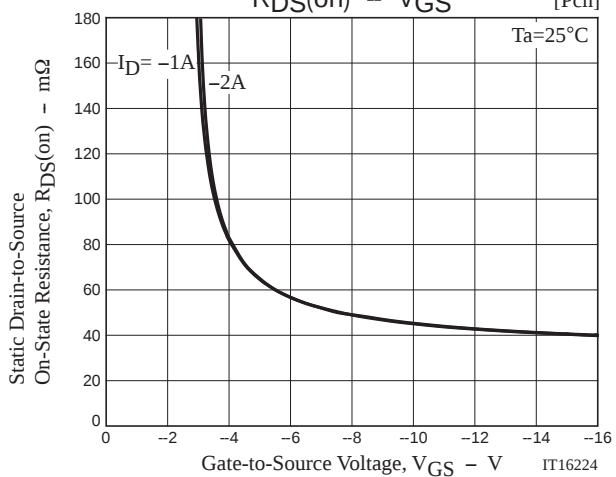
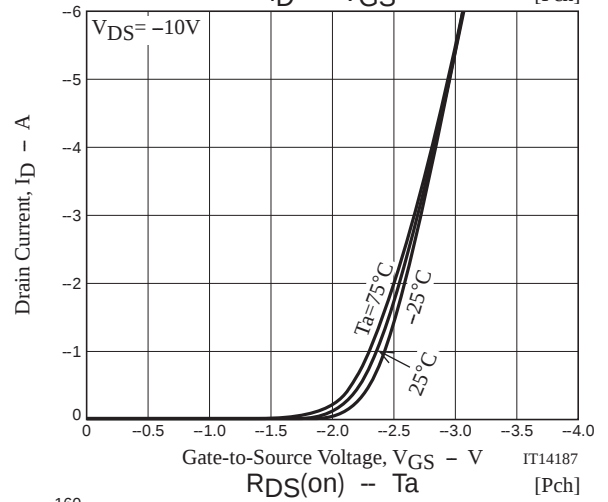
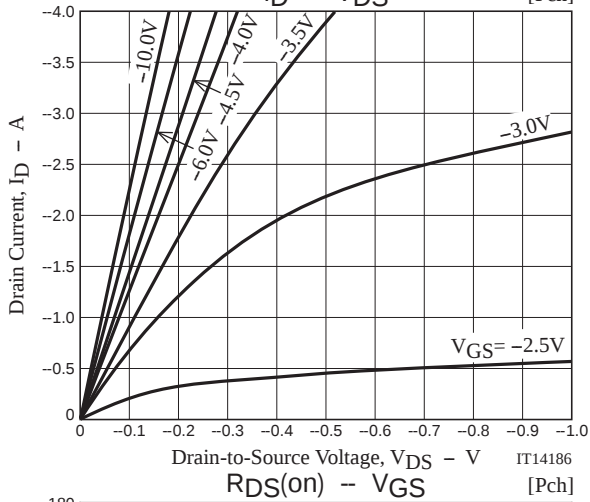
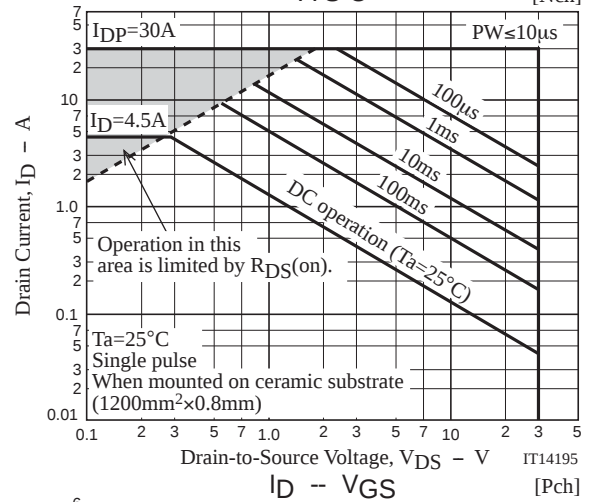
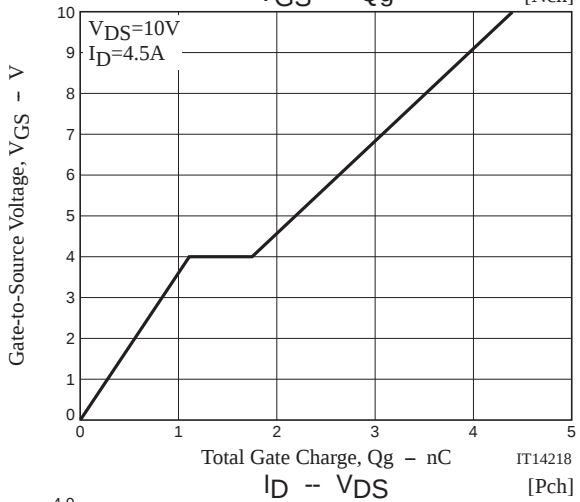
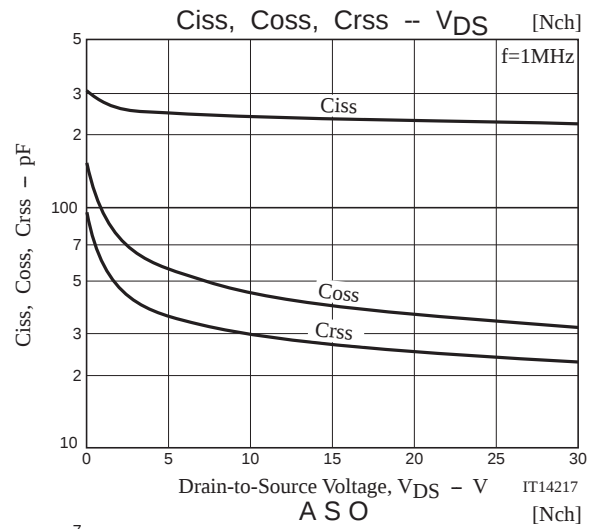
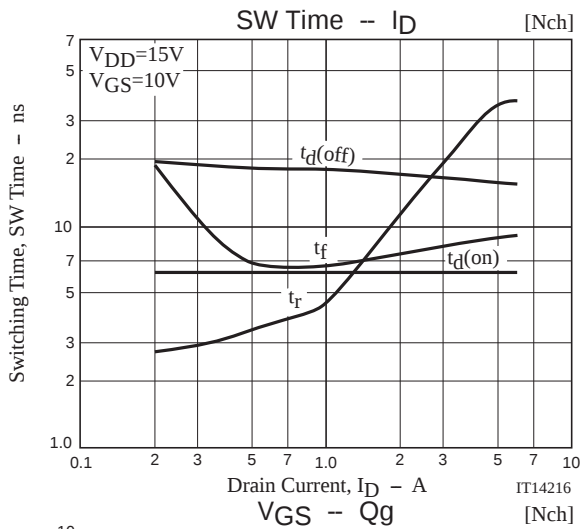
[P-channel]

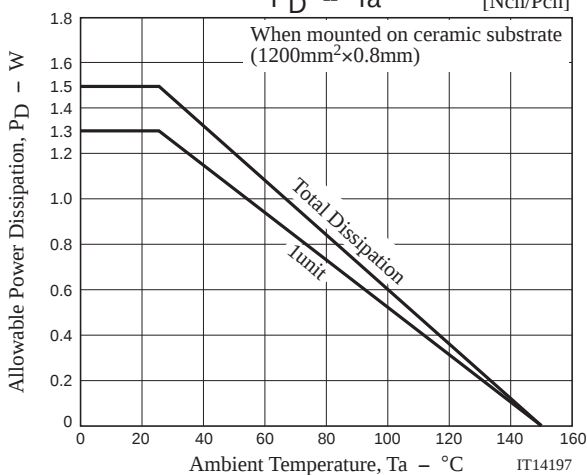
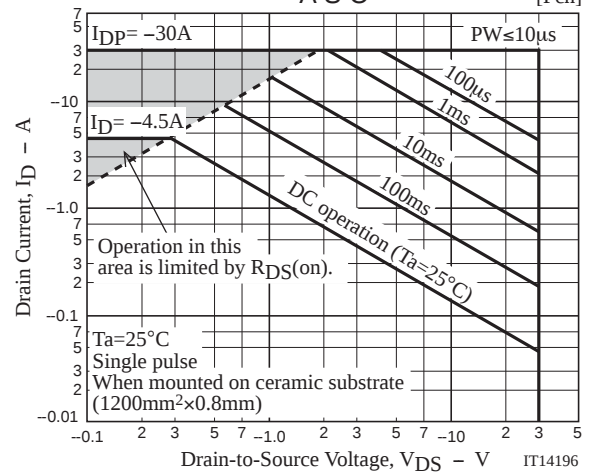
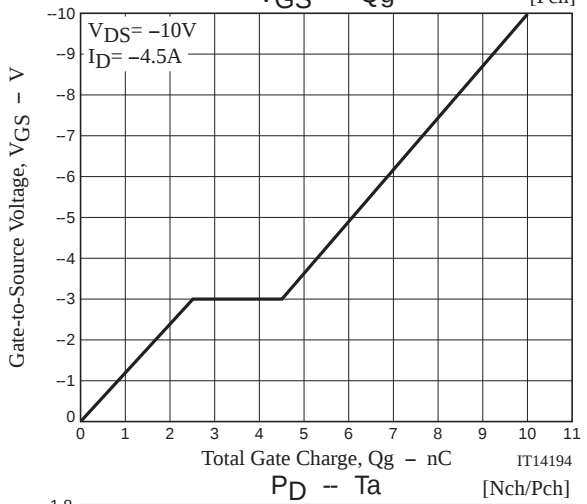
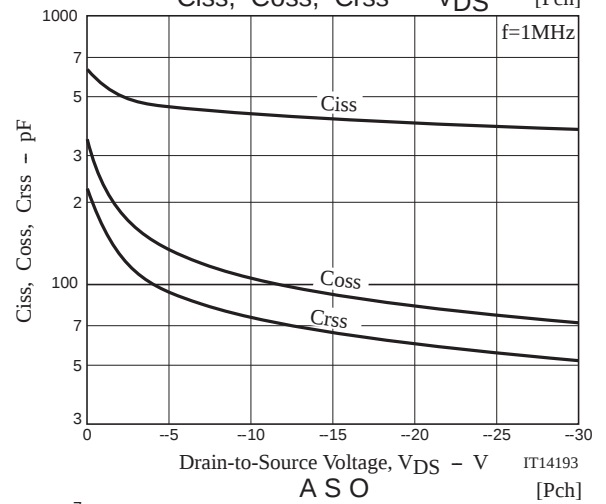
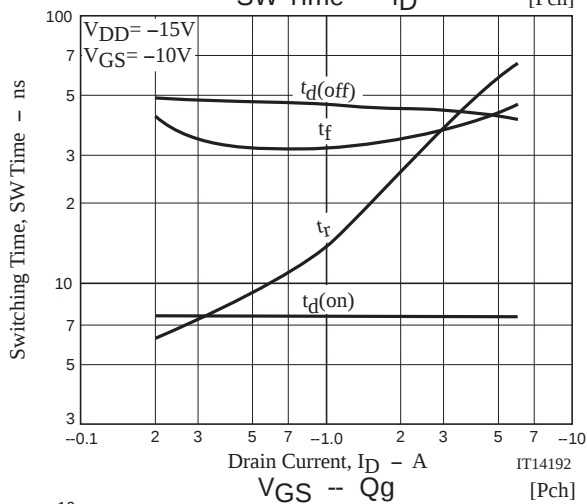
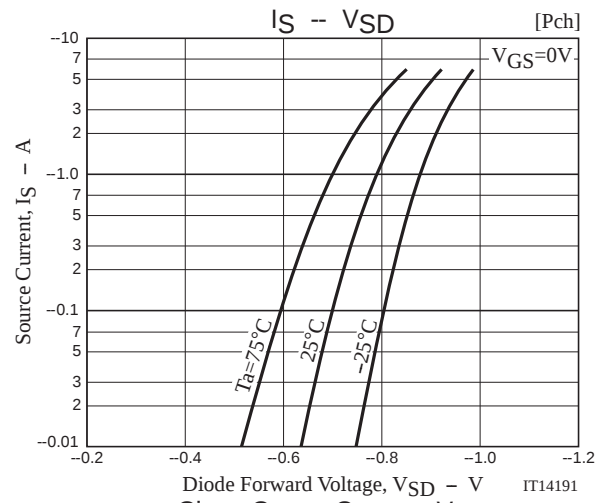
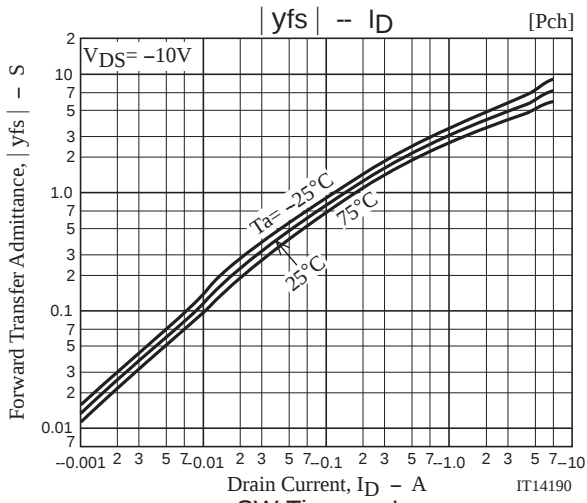


Ordering Information

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







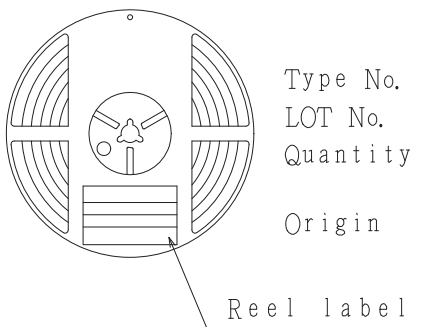
Embossed Taping Specification

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

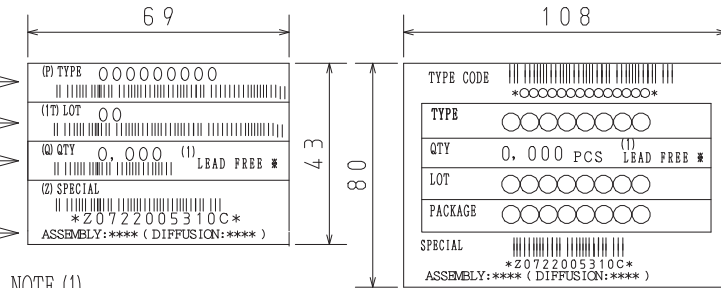
Packing method



Reel label, Inner box label
(unit:mm)

Outer box label

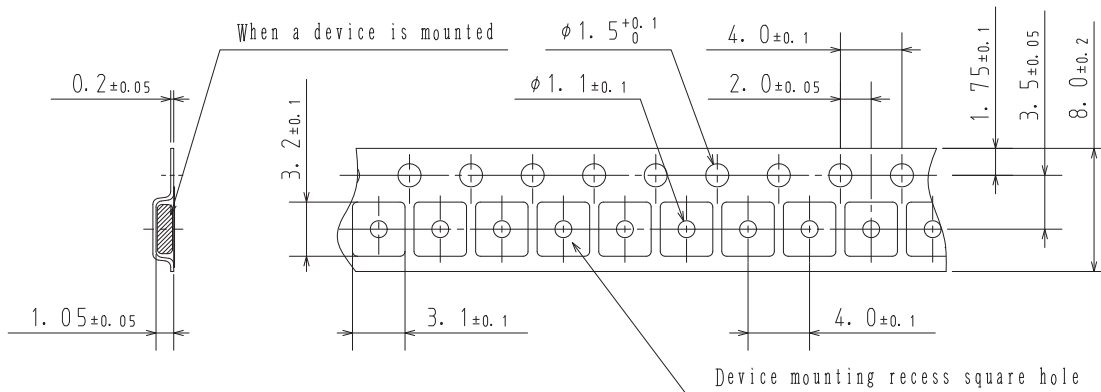
It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.



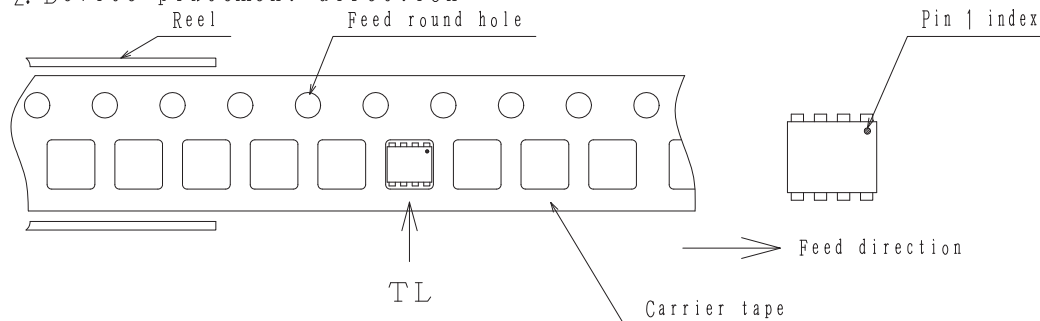
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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

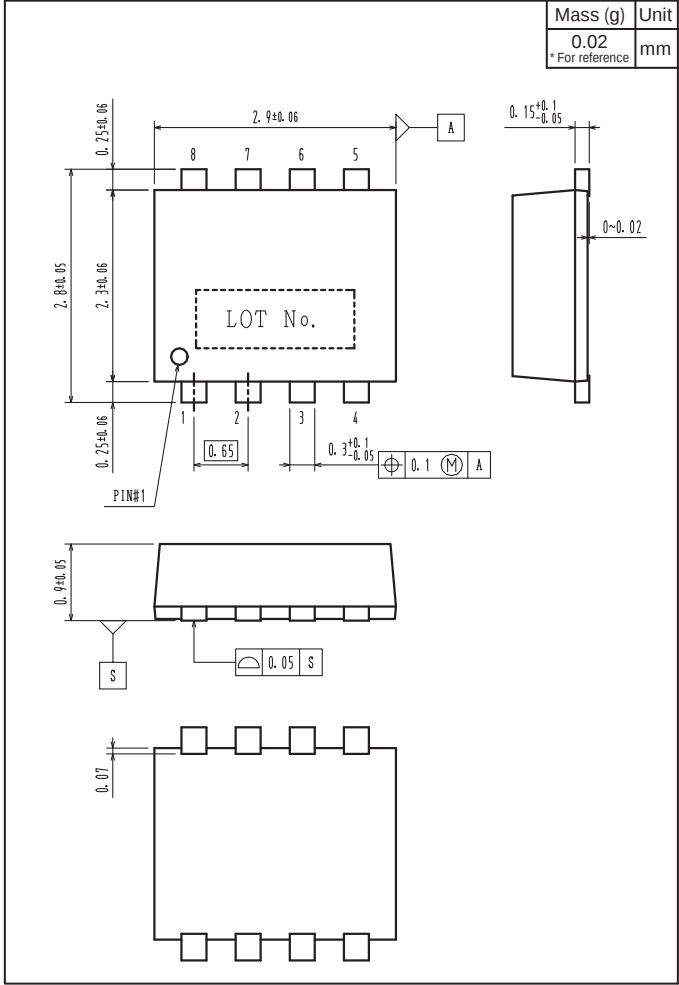


2-2. Device placement direction

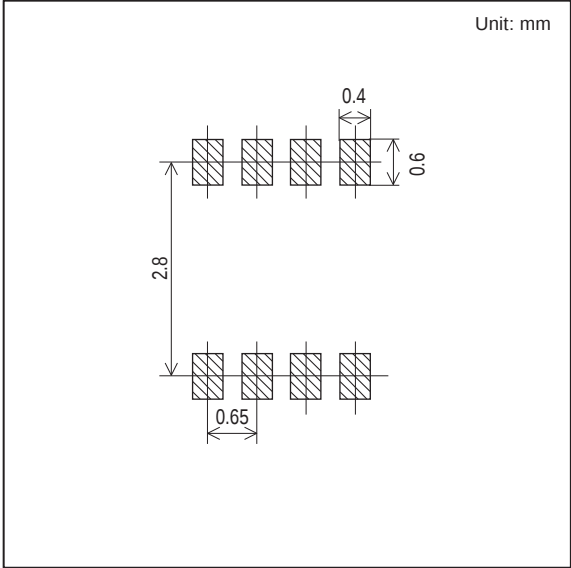


Those with pin 1 index on the feed hole side.....TL

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](#)

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru

moschip.ru_4

moschip.ru_6

moschip.ru_9