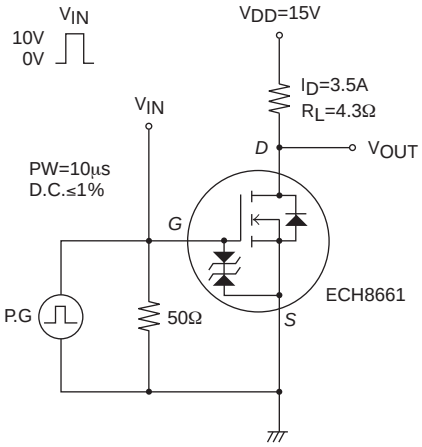
Electrical Characteristics at Ta=25°C

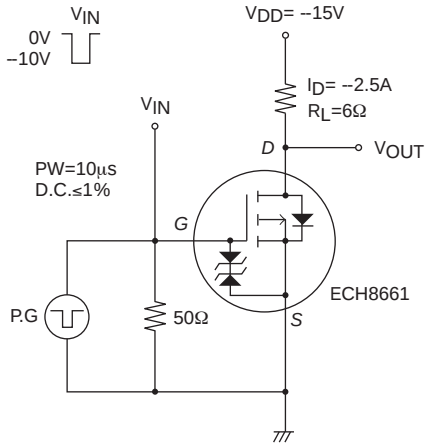
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[N-channel]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0V	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	1.2		2.6	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=3.5A		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	Ciss	V_{DS}=10V, f=1MHz		710		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		120		pF
Reverse Transfer Capacitance	Crss	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	Qg	V_{DS}=15V, V_{GS}=10V, I_D=7A		11.8		nC
Gate-to-Source Charge	Qgs			2.4		nC
Gate-to-Drain “Miller” Charge	Qgd			2.0		nC
Diode Forward Voltage	V_{SD}	I_S=7A, V_{GS}=0V		0.79	1.2	V
[P-channel]						
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	| yfs |	V_{DS}=−10V, I_D=−2.5A		5.2		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=−2.5A, V_{GS}=−10V		30	39	mΩ
	R_{DS}(on)2	I_D=−1.5A, V_{GS}=−4.5V		55	77	mΩ
	R_{DS}(on)3	I_D=−1.5A, V_{GS}=−4V		58	82	mΩ
Input Capacitance	Ciss	V_{DS}=−10V, f=1MHz		600		pF
Output Capacitance	Coss			145		pF
Reverse Transfer Capacitance	Crss			110		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		7.2		ns
Rise Time	t_r			23		ns
Turn-OFF Delay Time	t_d(off)			63		ns
Fall Time	t_f			42		ns
Total Gate Charge	Qg	V_{DS}=−15V, V_{GS}=−10V, I_D=−5.5A		13		nC
Gate-to-Source Charge	Qgs			1.8		nC
Gate-to-Drain “Miller” Charge	Qgd			3.2		nC
Diode Forward Voltage	V_{SD}	I_S=−5.5A, V_{GS}=0V		−0.82	−1.2	V

Switching Time Test Circuit

[N-channel]

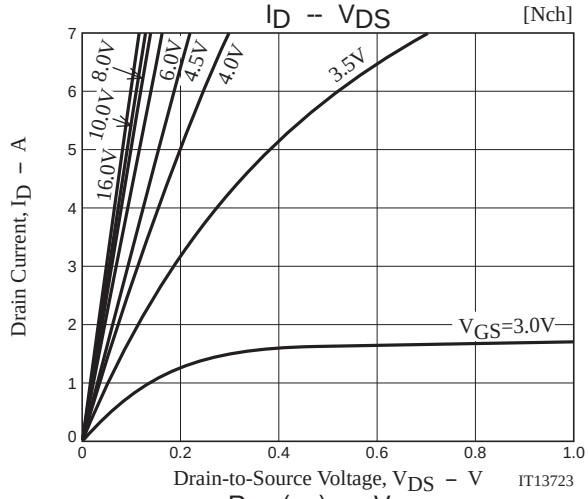


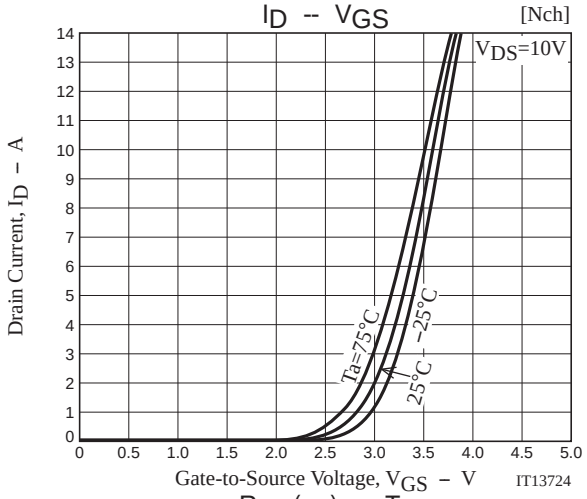
[P-channel]

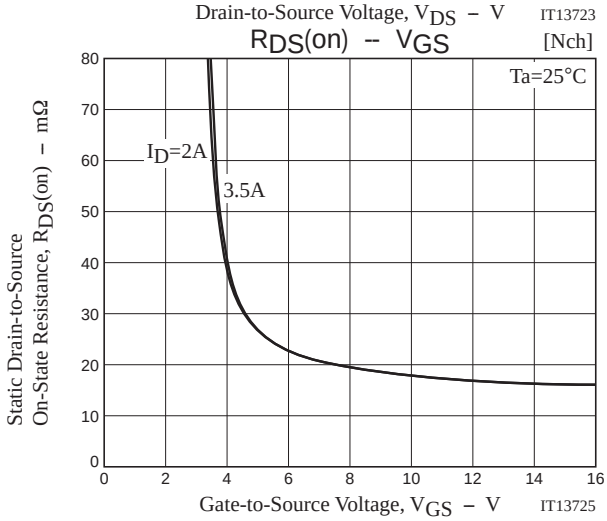


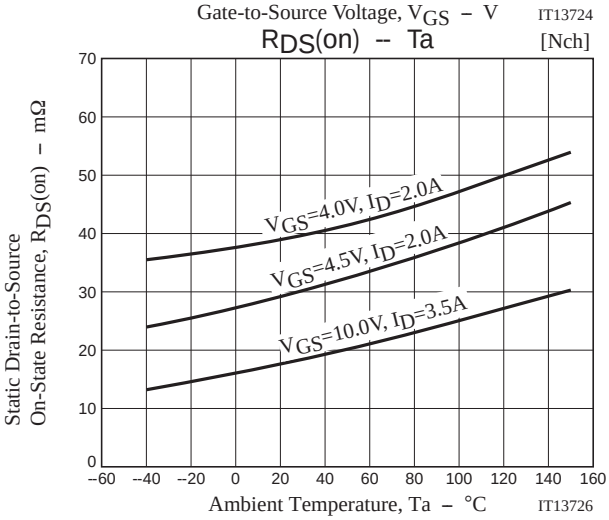
Ordering Information

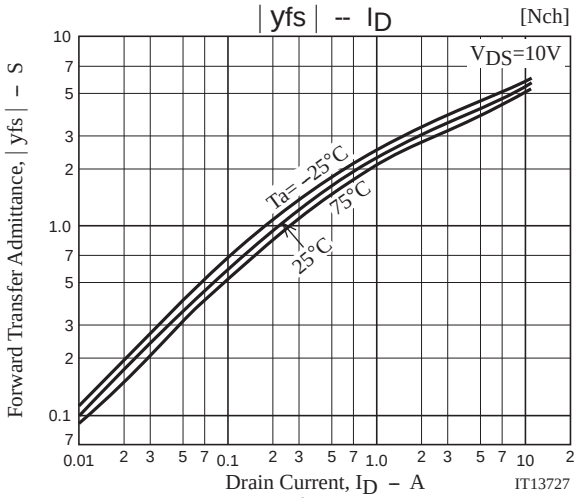
Device	Package	Shipping	memo
ECH8661-TL-H	ECH8	3,000pcs./reel	Pb Free and Halogen Free

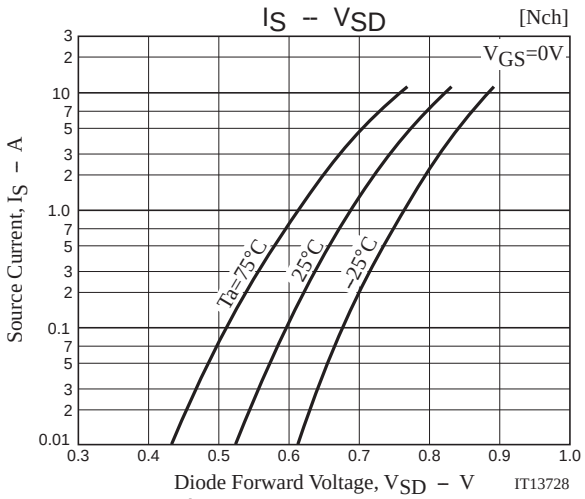


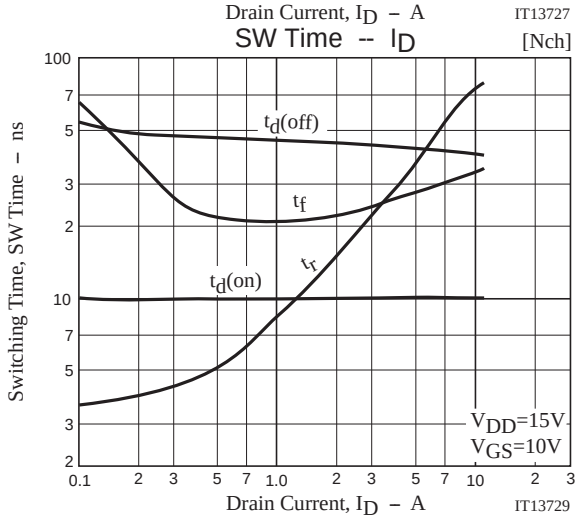


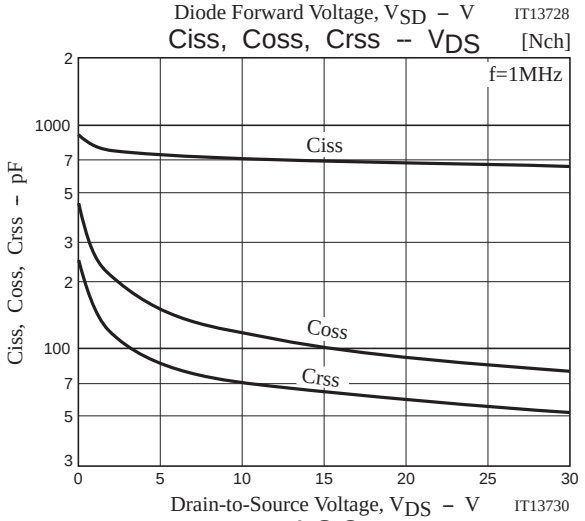


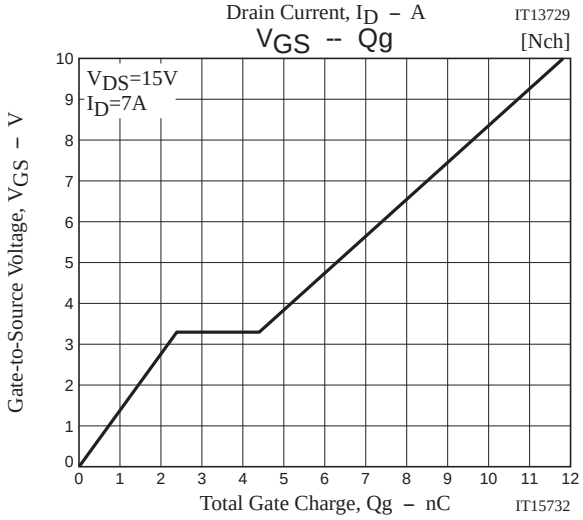


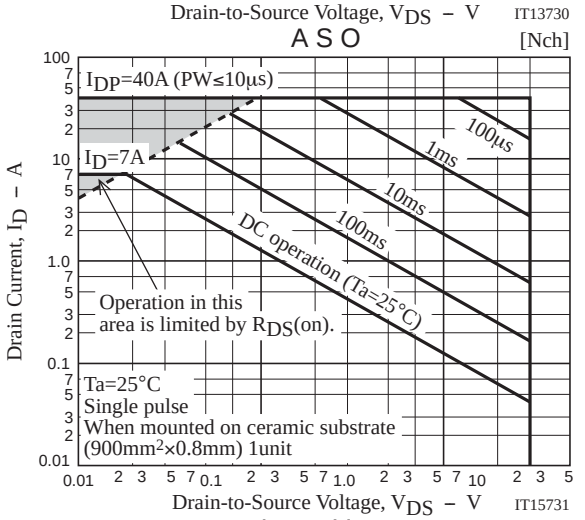


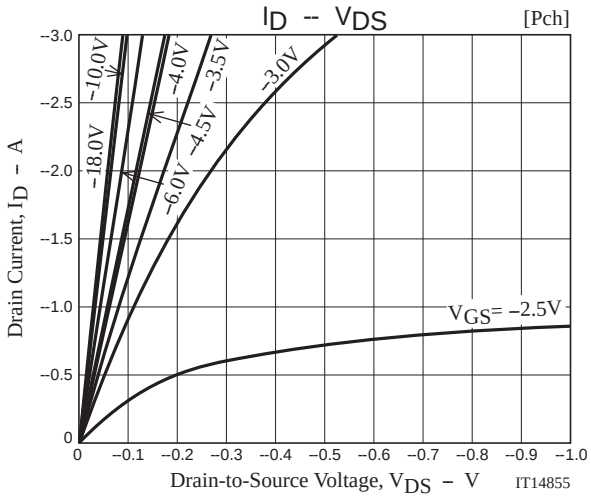


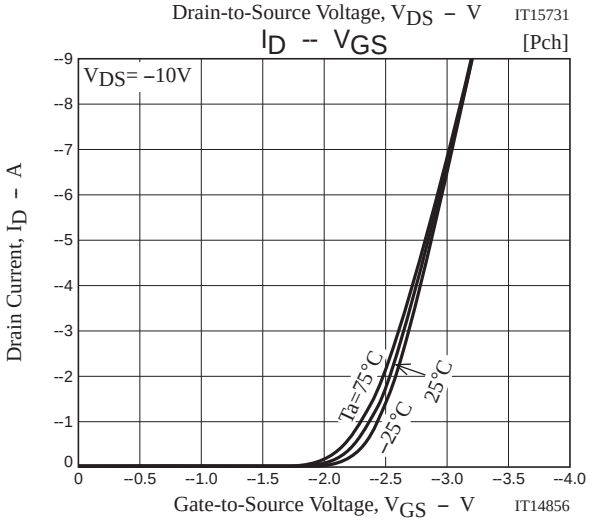


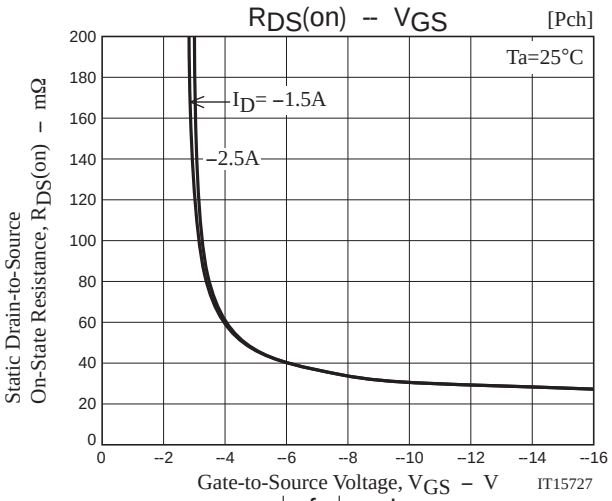


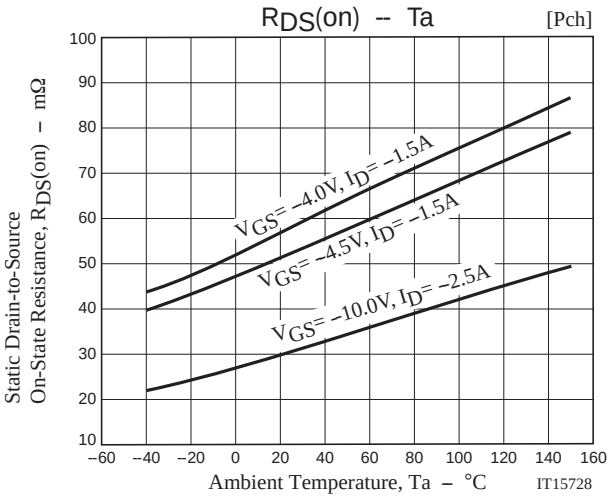


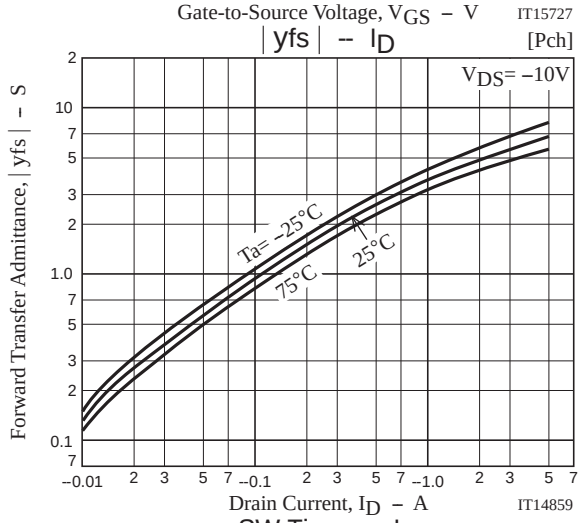


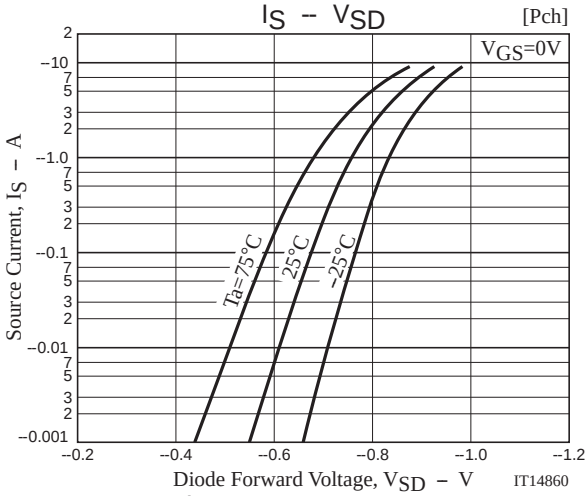


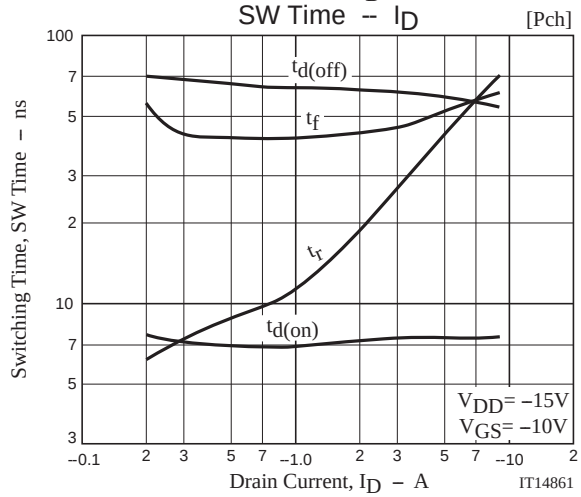


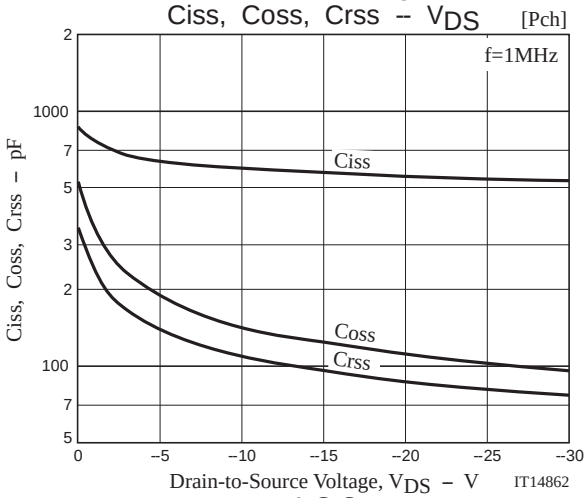


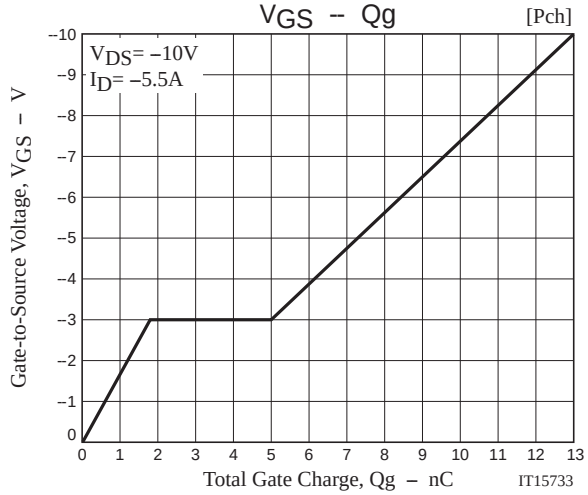


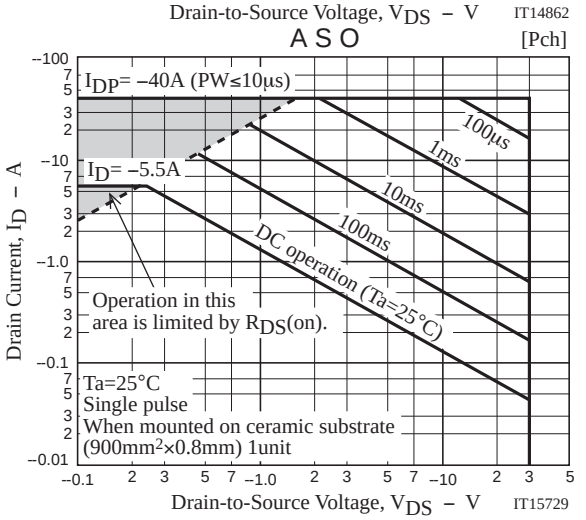


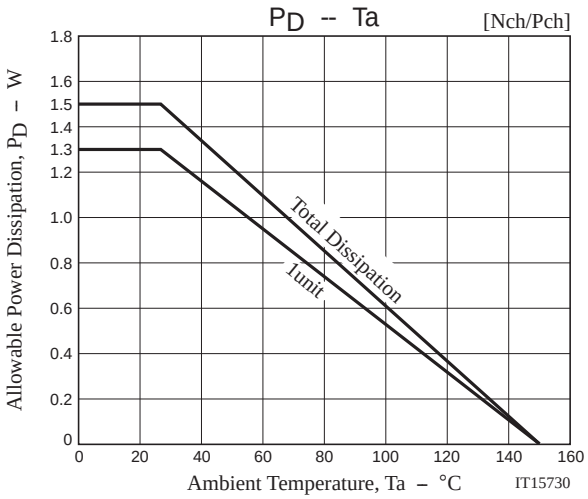












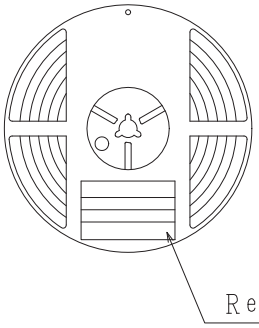
Embossed Taping Specification

ECH8661-TL-H

1. Packing Format

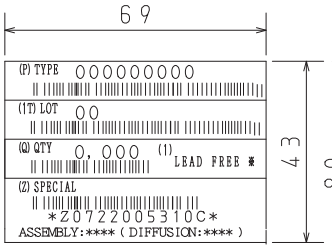
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
ECH8	CPH6	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Packing method



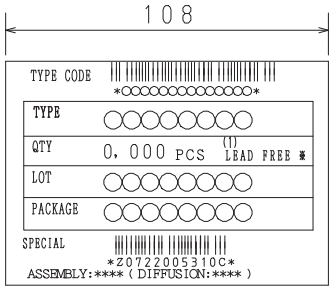
Reel label, Inner box label

(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.



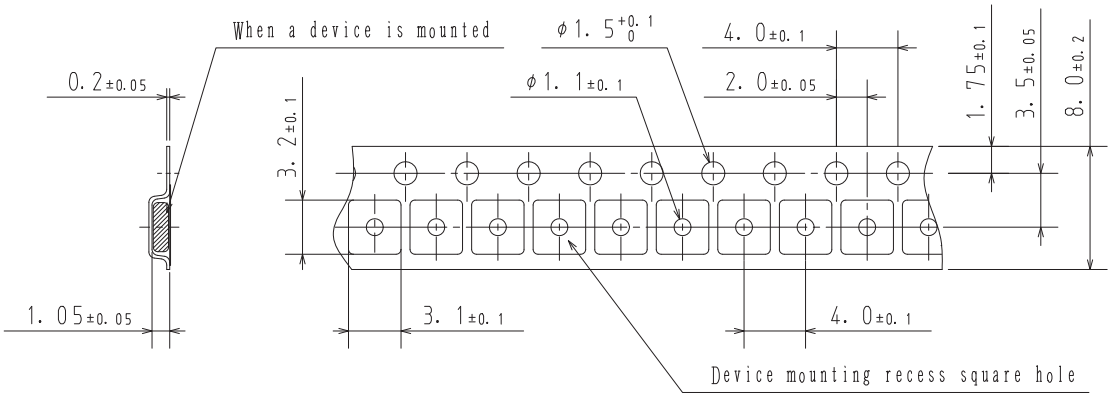
NOTE (1)

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

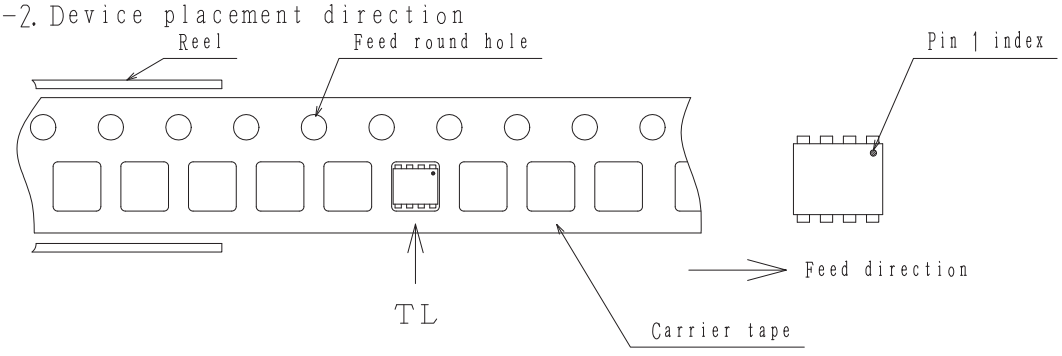
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



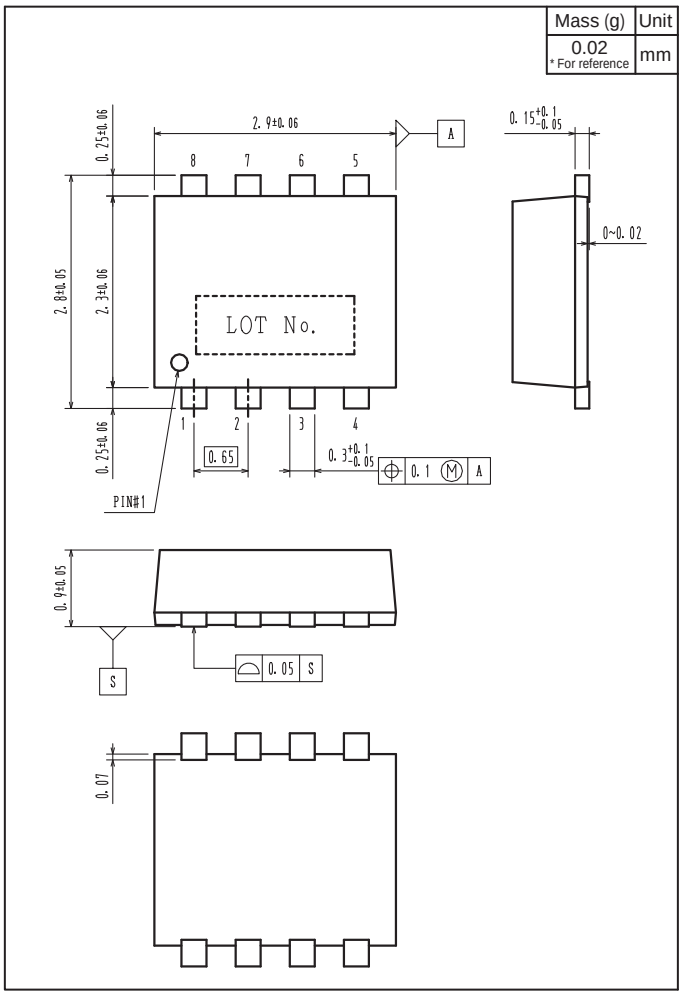
2-2. Device placement direction



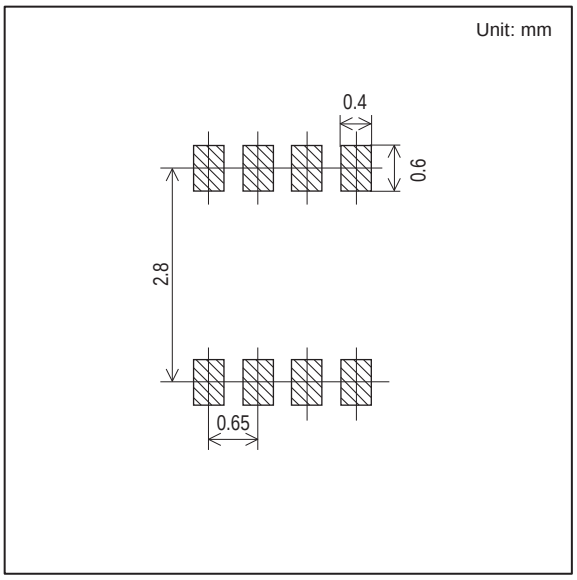
Those with pin 1 index on the feed hole side·····TL

Outline Drawing

ECH8661-TL-H



Land Pattern Example



Note on usage : Since the ECH8661 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.