



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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ECH8657

N-Channel Power MOSFET 35V, 4.5A, 59mΩ, Dual ECH8

ON Semiconductor®

<http://onsemi.com>

Features

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

Specifications

Absolute Maximum Ratings at Ta=25°C

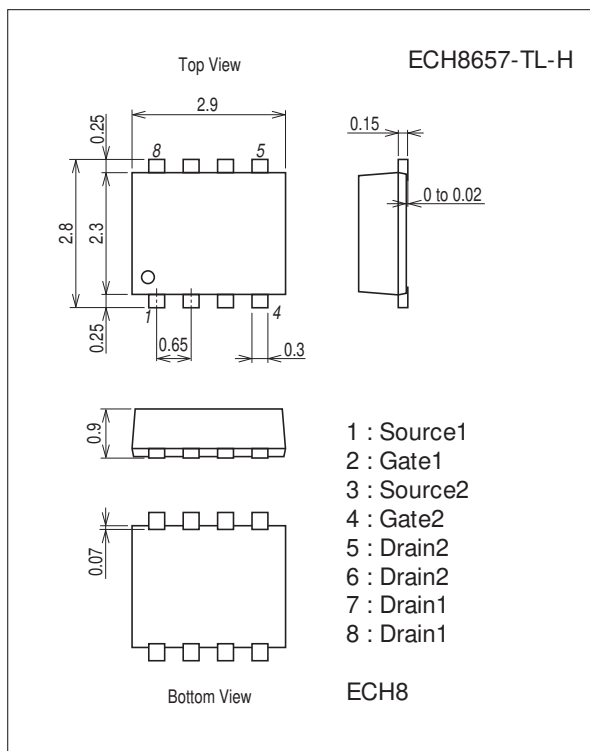
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V _{DSS}		35	V
Gate-to-Source Voltage	V _{GSS}		±20	V
Drain Current (DC)	I _D		4.5	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	30	A
Allowable Power Dissipation	P _D	When mounted on ceramic substrate (1200mm ² ×0.8mm) 1unit	1.3	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

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)

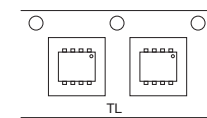
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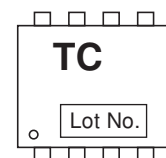
Product & Package Information

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

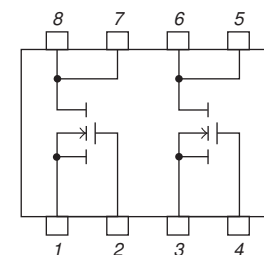
Packing Type : TL



Marking



Electrical Connection

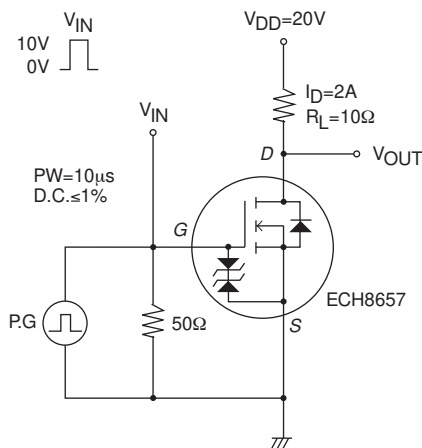


ECH8657

Electrical Characteristics at Ta=25°C

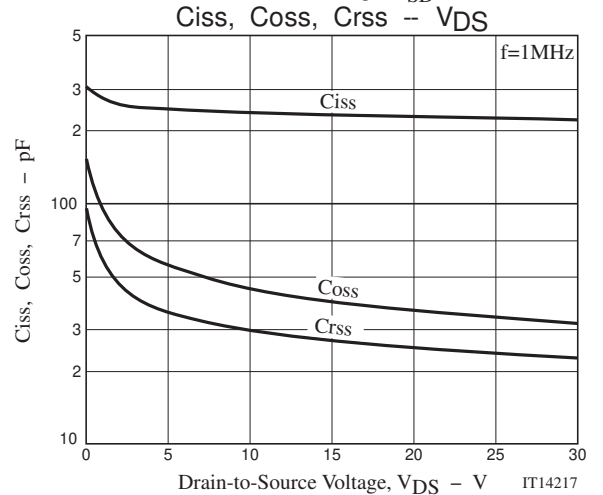
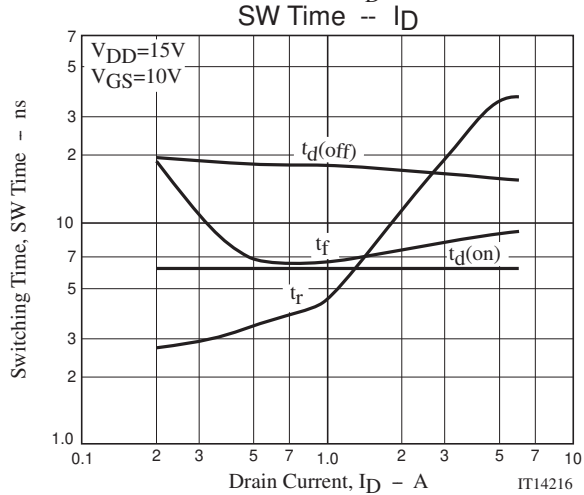
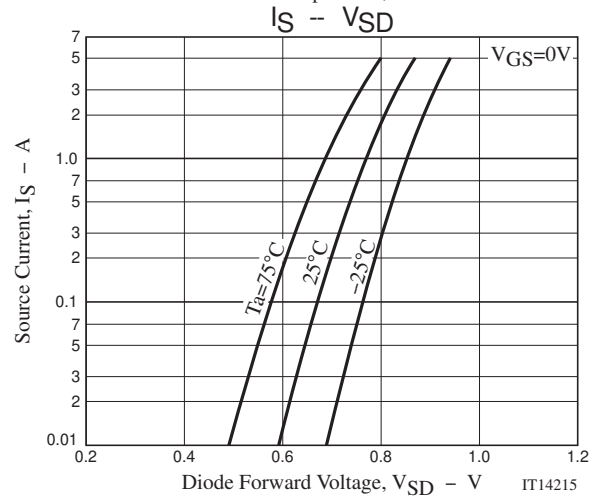
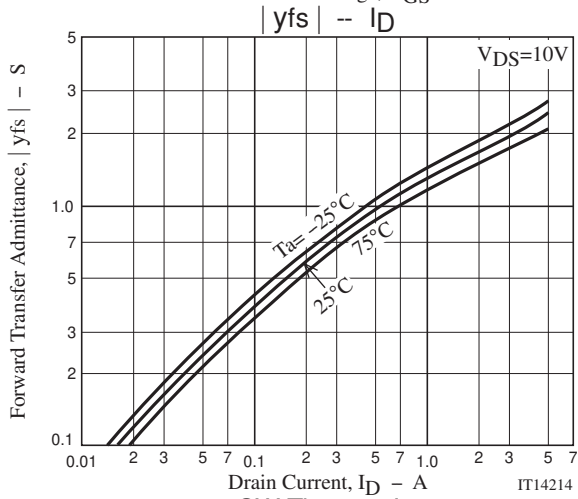
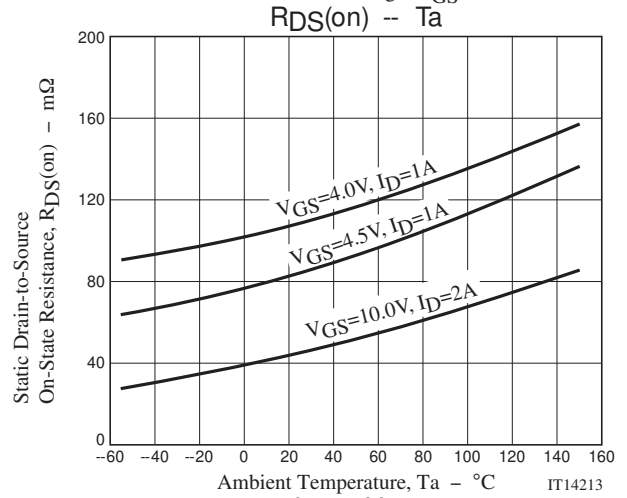
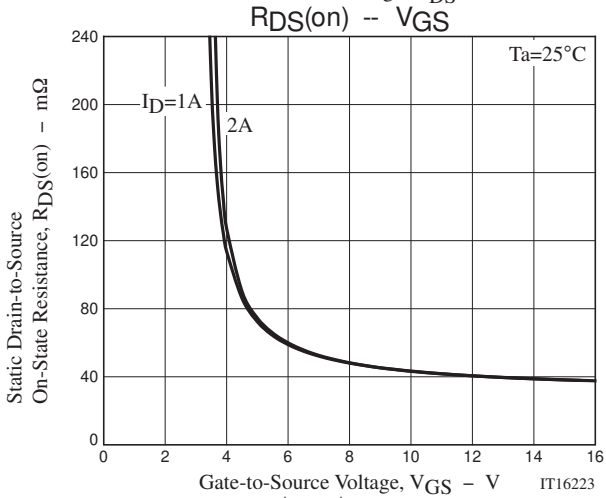
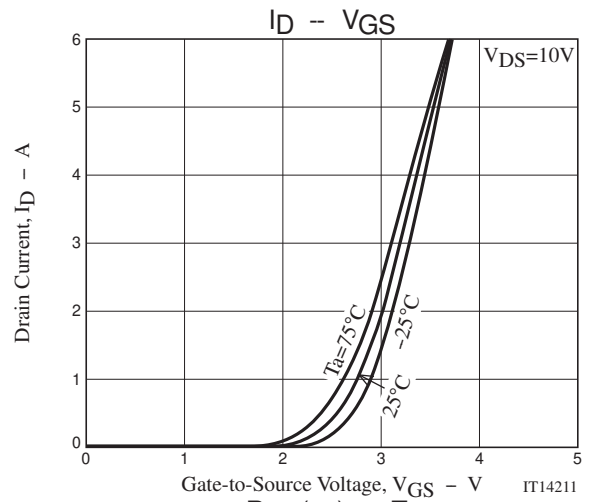
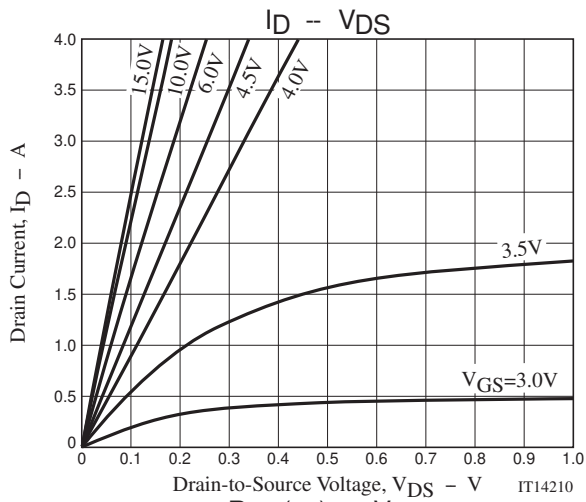
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0V$	35			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=35V, V_{GS}=0V$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16V, V_{DS}=0V$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	1.2		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=2A$		1.66		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=2A, V_{GS}=10V$		45	59	$m\Omega$
	$R_{DS(on)2}$	$I_D=1A, V_{GS}=4.5V$		85	119	$m\Omega$
	$R_{DS(on)3}$	$I_D=1A, V_{GS}=4V$		110	155	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=20V, f=1MHz$		230		pF
Output Capacitance	C_{oss}			37		pF
Reverse Transfer Capacitance	C_{rss}			25		pF
Turn-ON Delay Time	$t_{d(on)}$		See specified Test Circuit.		6	
Rise Time	t_r			11		ns
Turn-OFF Delay Time	$t_{d(off)}$			17		ns
Fall Time	t_f			9		ns
Total Gate Charge	Q_g	$V_{DS}=20V, V_{GS}=10V, I_D=4.5A$			4.6	
Gate-to-Source Charge	Q_{gs}			1.0		nC
Gate-to-Drain "Miller" Charge	Q_{gd}			1.0		nC
Diode Forward Voltage	V_{SD}	$I_S=4.5A, V_{GS}=0V$		0.85	1.2	V

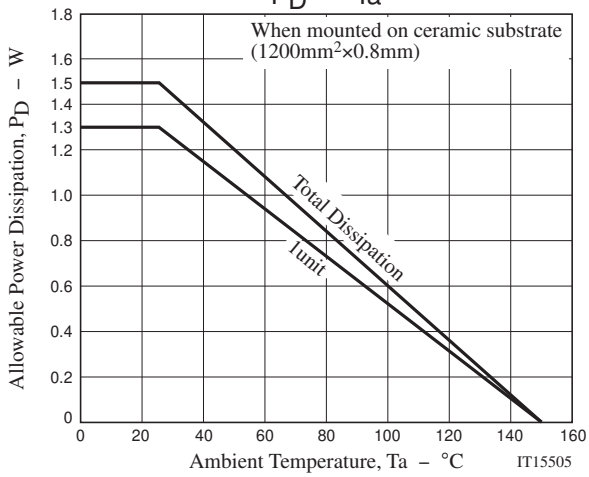
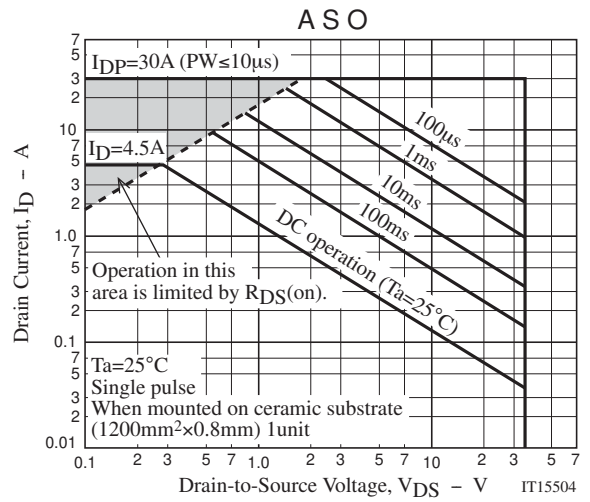
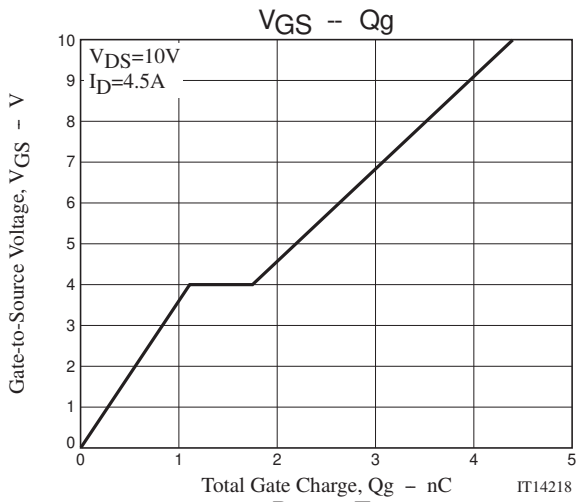
Switching Time Test Circuit



Ordering Information

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





Embossed Taping Specification

ECH8657-TL-H

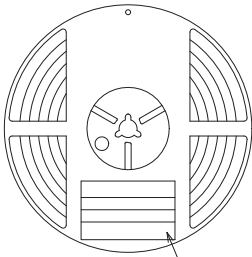
1. Packing Format

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

Reel label, Inner box label
(unit :mm)

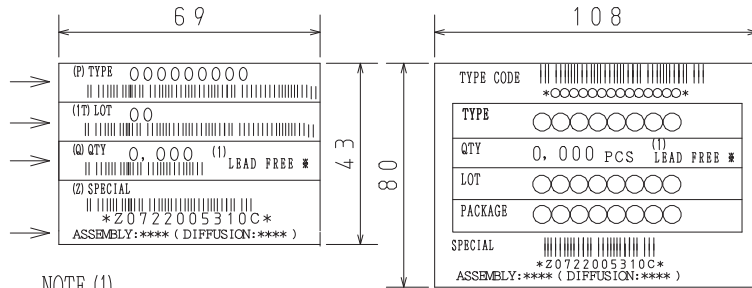
Outer box label
It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.

Packing method



Reel label

Type No.
LOT No.
Quantity
Origin



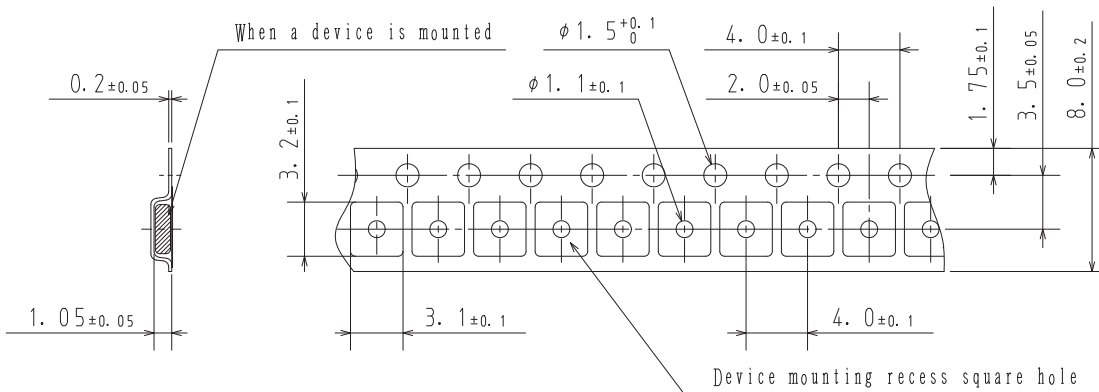
NOTE (1)

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

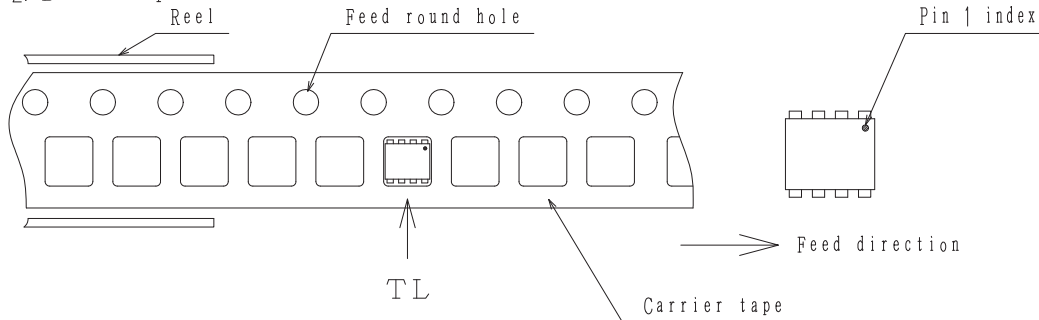
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



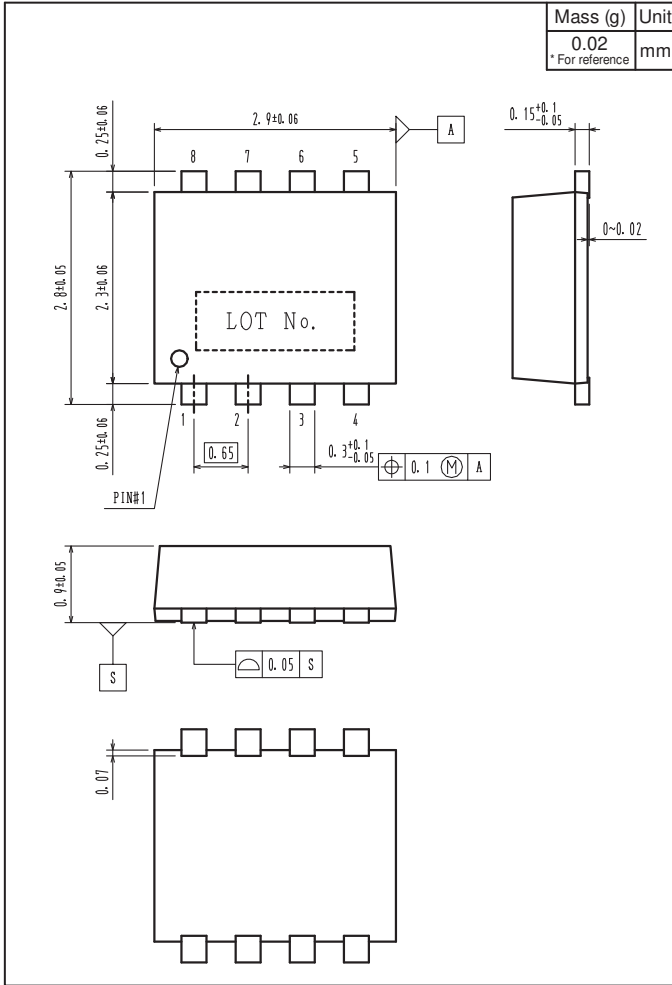
2-2. Device placement direction



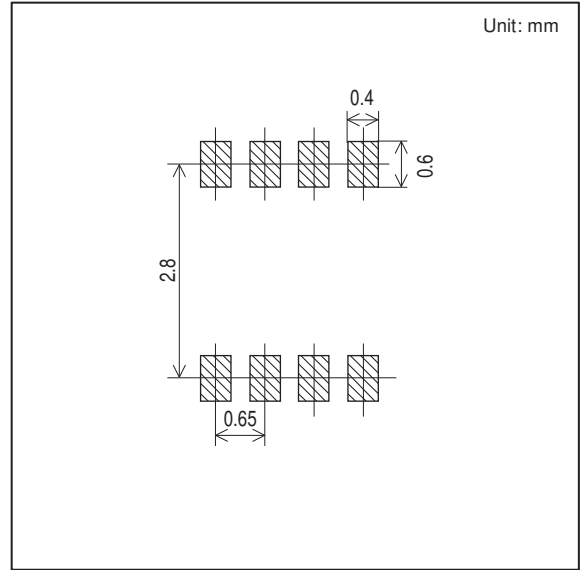
Those with pin 1 index on the feed hole side.....TL

Outline Drawing

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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