



ECH8673

Power MOSFET

40V, 3.5A, 85mΩ, -40V -2.5A, 163mΩ, Complementary Dual ECH8

ON Semiconductor®

<http://onsemi.com>

Features

- ON-resistance Nch: $R_{DS(on)1}=65m\Omega$ (typ.), Pch: ON-resistance $R_{DS(on)1}=125m\Omega$ (typ.)
- 4V drive
- Halogen free compliance
- Nch+Pch MOSFET

Specifications

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

Parameter	Symbol	Conditions	N-channel	P-channel	Unit
Drain to Source Voltage	V_{DSS}		40	-40	V
Gate to Source Voltage	V_{GSS}		± 20	± 20	V
Drain Current (DC)	I_D		3.5	-2.5	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

This product is designed to "ESD immunity < 200V*", so please take care when handling.

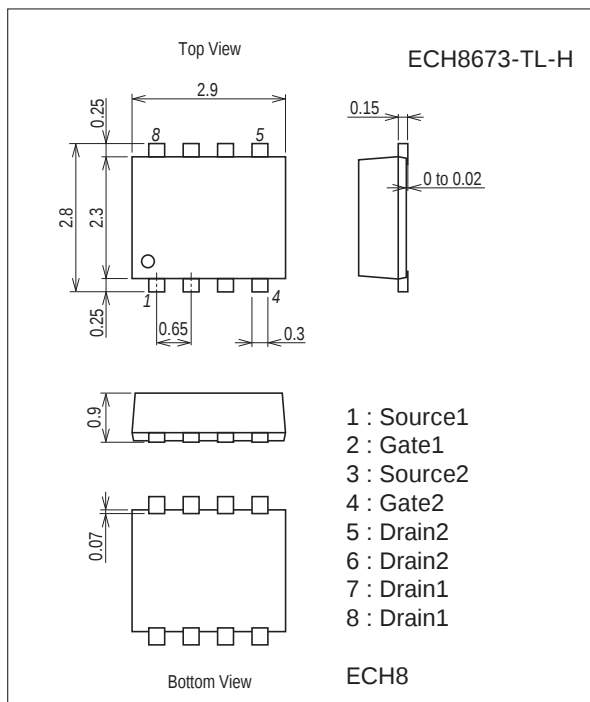
* Machine Model

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)

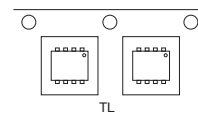
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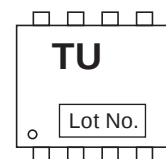
Product & Package Information

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

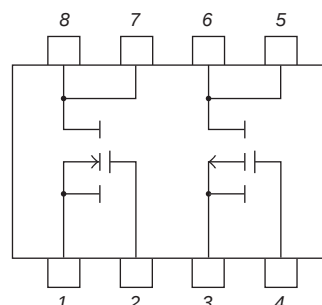
Packing Type : TL



Marking



Electrical Connection

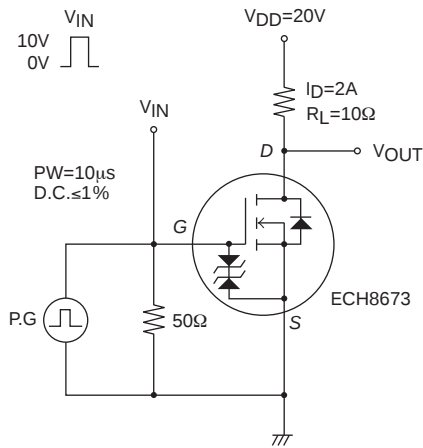


Electrical Characteristics at Ta=25°C

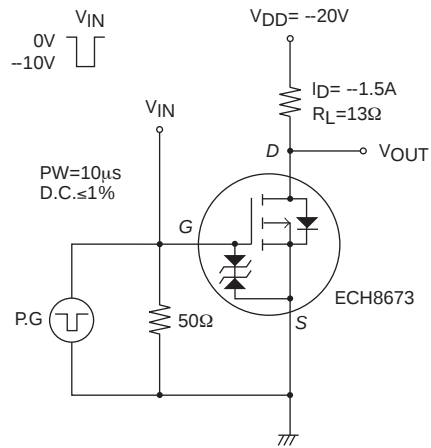
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[N-channel]						
Drain to Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	40			V
Zero-Gate Voltage Drain Current	IDSS	VDS=40V, VGS=0V			1	μA
Gate to Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	1.2		2.6	V
Forward Transfer Admittance	yfs	VDS=10V, ID=2A		1.7		S
Static Drain to Source On-State Resistance	RDS(on)1	ID=2A, VGS=10V		65	85	mΩ
	RDS(on)2	ID=1A, VGS=4.5V		105	147	mΩ
	RDS(on)3	ID=1A, VGS=4V		125	175	mΩ
Input Capacitance	Ciss	VDS=20V, f=1MHz		230		pF
Output Capacitance	Coss			36		pF
Reverse Transfer Capacitance	Crss			9.9		pF
Turn-ON Delay Time	tD(on)	See specified Test Circuit.		5.8		ns
Rise Time	tr			10.6		ns
Turn-OFF Delay Time	tD(off)			18.5		ns
Fall Time	tf			9.8		ns
Total Gate Charge	Qg	VDS=20V, VGS=10V, ID=3.5A		5.3		nC
Gate to Source Charge	Qgs			1.1		nC
Gate to Drain “Miller” Charge	Qgd			1.1		nC
Diode Forward Voltage	VSD	IS=3.5A, VGS=0V		0.84	1.2	V
[P-channel]						
Drain to Source Breakdown Voltage	V(BR)DSS	ID=-1mA, VGS=0V	-40			V
Zero-Gate Voltage Drain Current	IDSS	VDS=-40V, 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=-1.5A		2.7		S
Static Drain to Source On-State Resistance	RDS(on)1	ID=-1.5A, VGS=-10V		125	163	mΩ
	RDS(on)2	ID=-0.75A, VGS=-4.5V		190	266	mΩ
	RDS(on)3	ID=-0.75A, VGS=-4V		215	301	mΩ
Input Capacitance	Ciss	VDS=-20V, f=1MHz		198		pF
Output Capacitance	Coss			36		pF
Reverse Transfer Capacitance	Crss			8.1		pF
Turn-ON Delay Time	tD(on)	See specified Test Circuit.		5.8		ns
Rise Time	tr			10.3		ns
Turn-OFF Delay Time	tD(off)			27.6		ns
Fall Time	tf			17.3		ns
Total Gate Charge	Qg	VDS=-20V, VGS=-10V, ID=-2.5A		5.9		nC
Gate to Source Charge	Qgs			0.84		nC
Gate to Drain “Miller” Charge	Qgd			1.3		nC
Diode Forward Voltage	VSD	IS=-2.5A, VGS=0V		-0.87	-1.2	V

Switching Time Test Circuit

[N-channel]

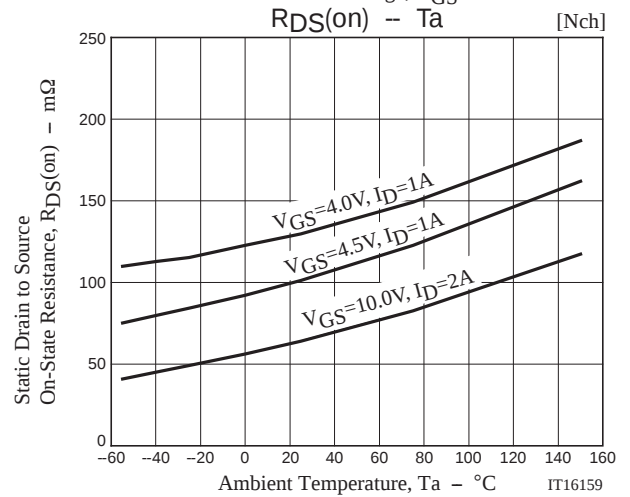
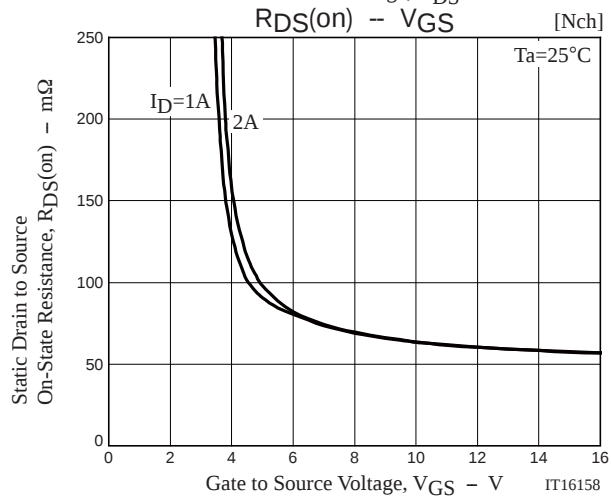
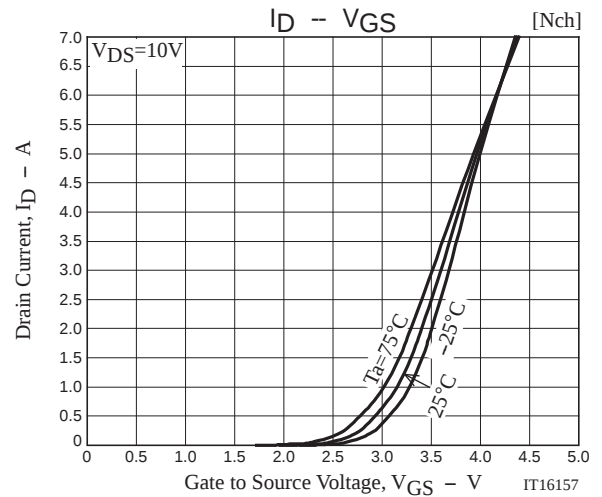
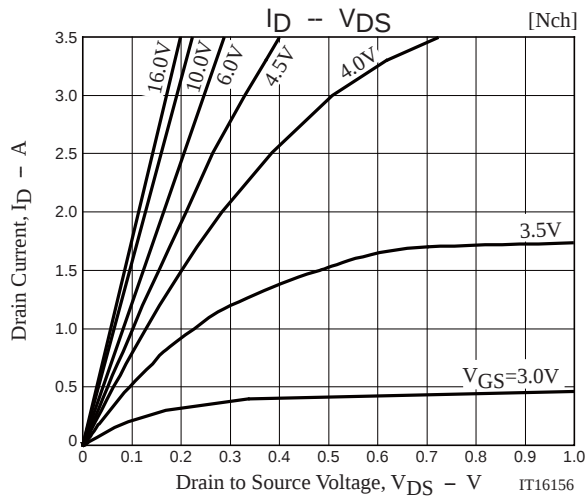


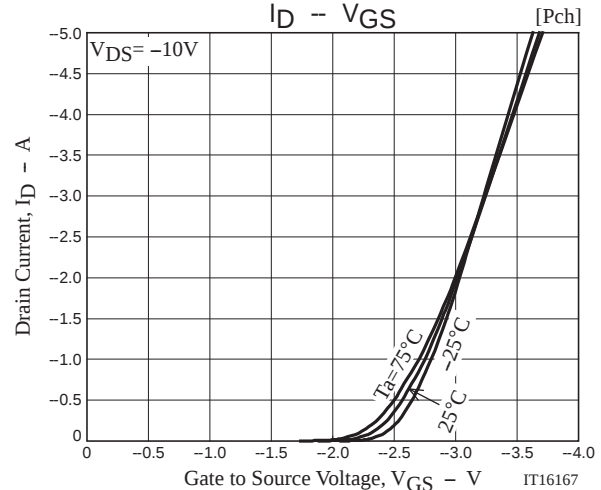
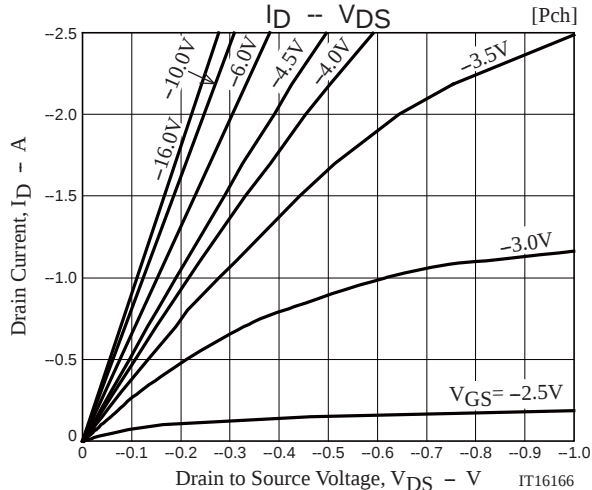
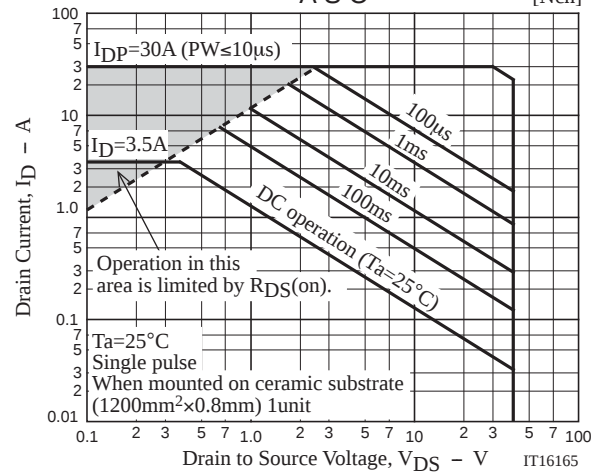
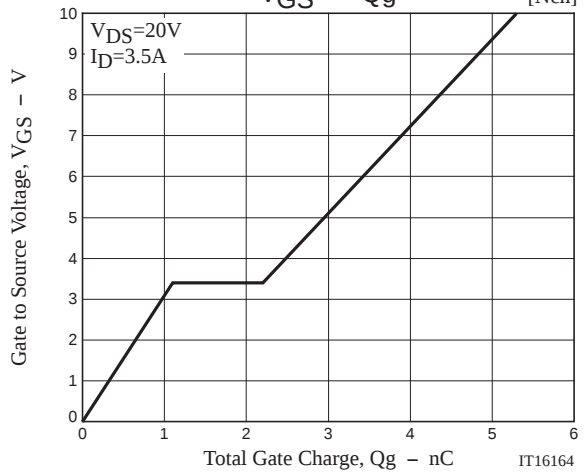
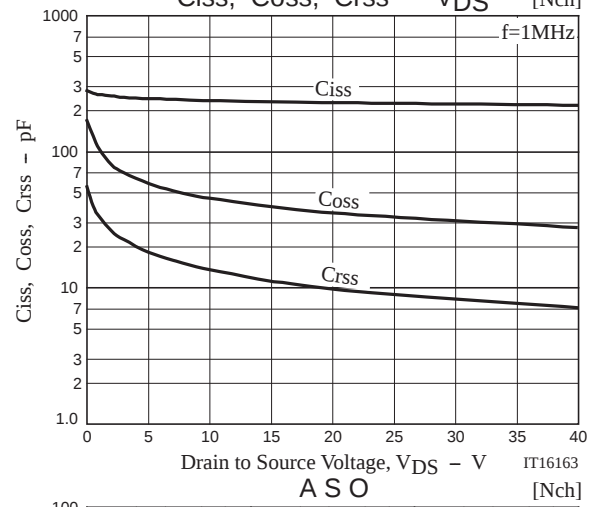
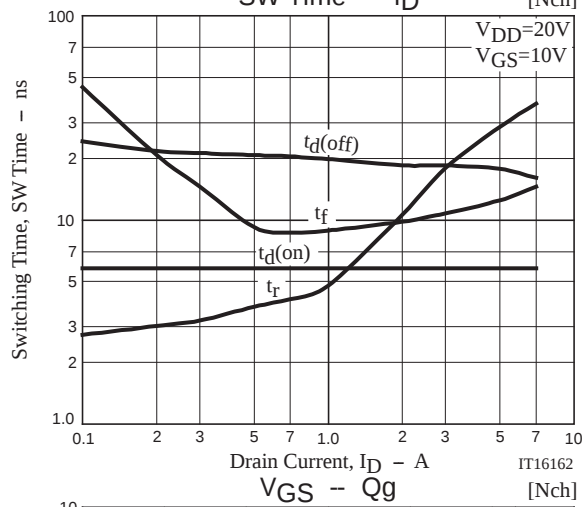
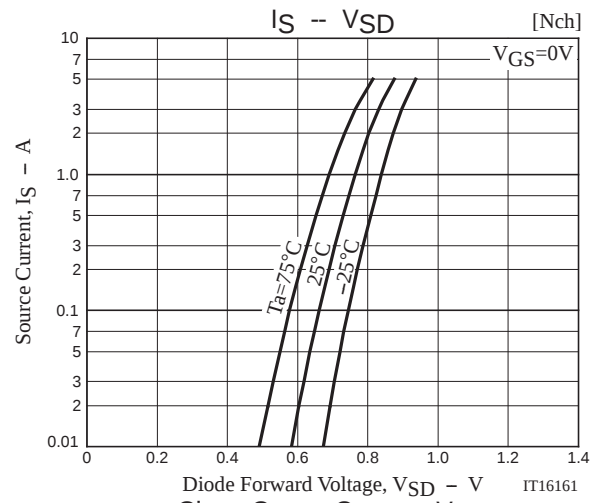
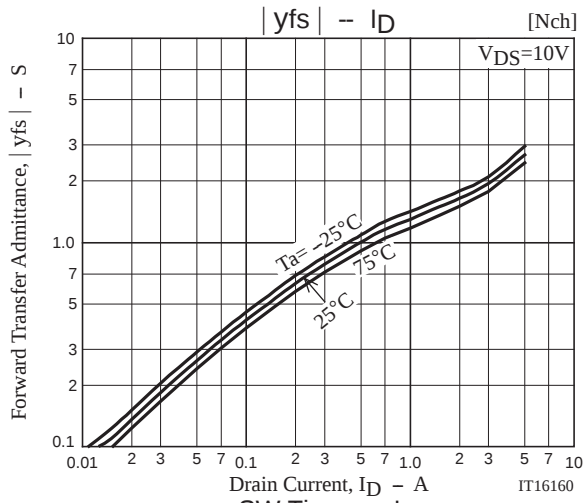
[P-channel]

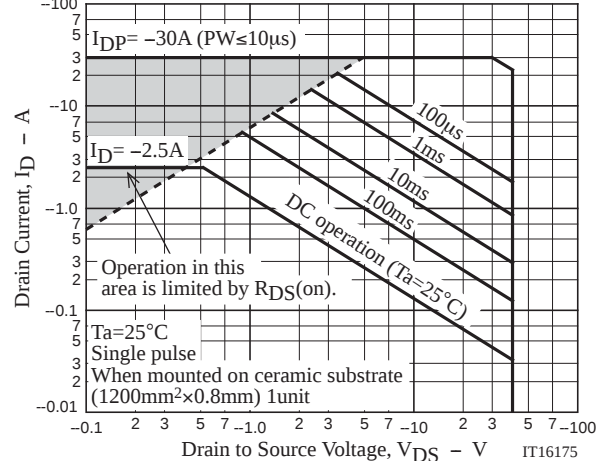
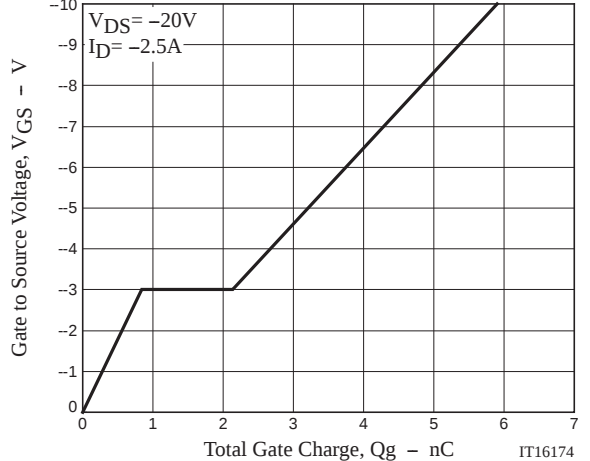
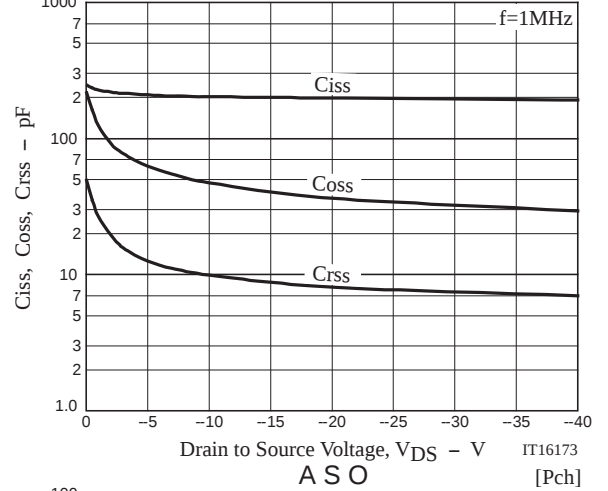
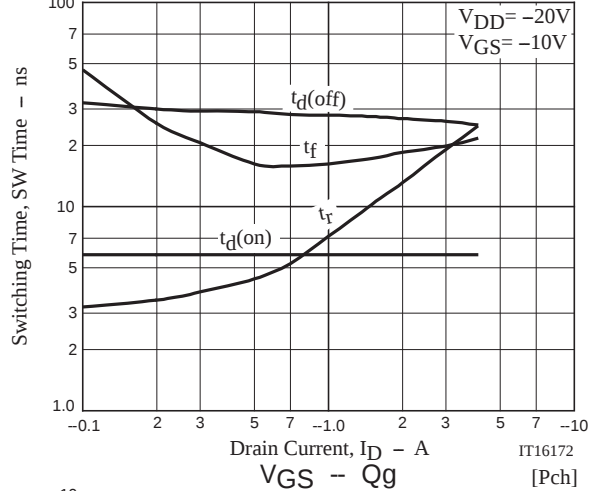
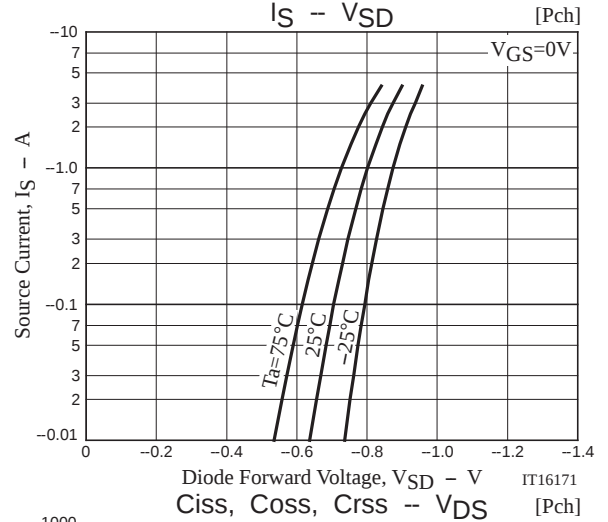
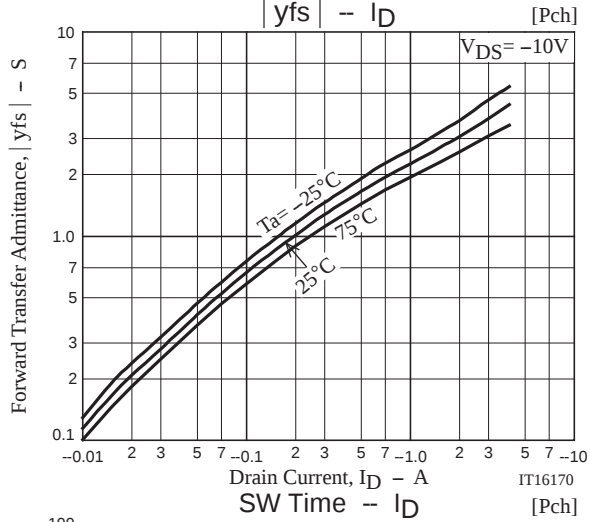
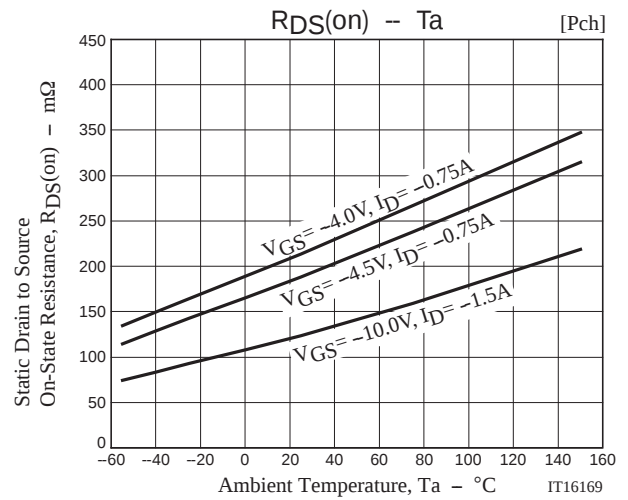
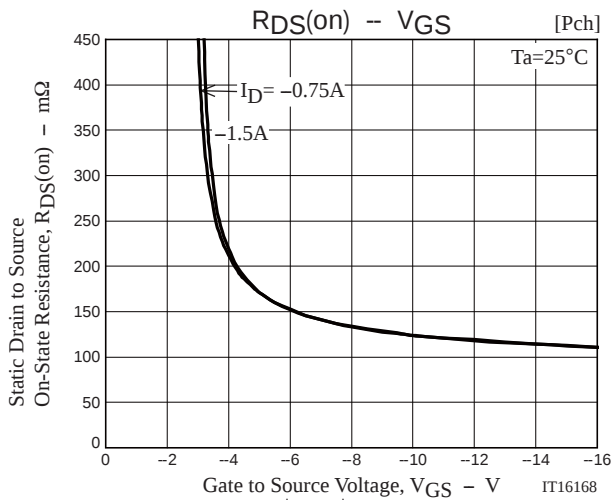


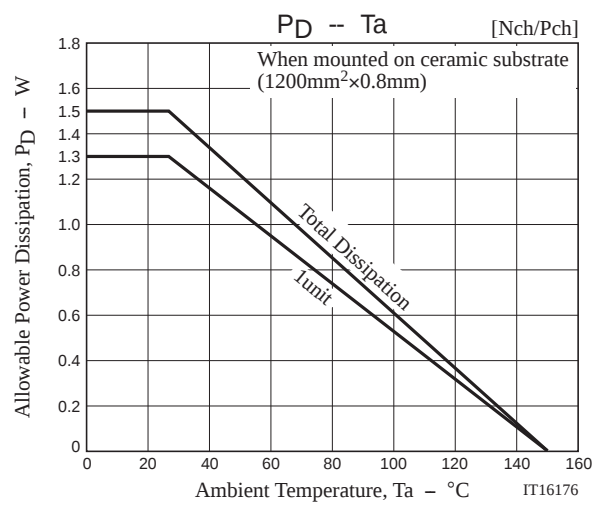
Ordering Information

Device	Package	Shipping	memo
ECH8673-TL-H	ECH8	3,000pcs./reel	Pb Free and Halogen Free

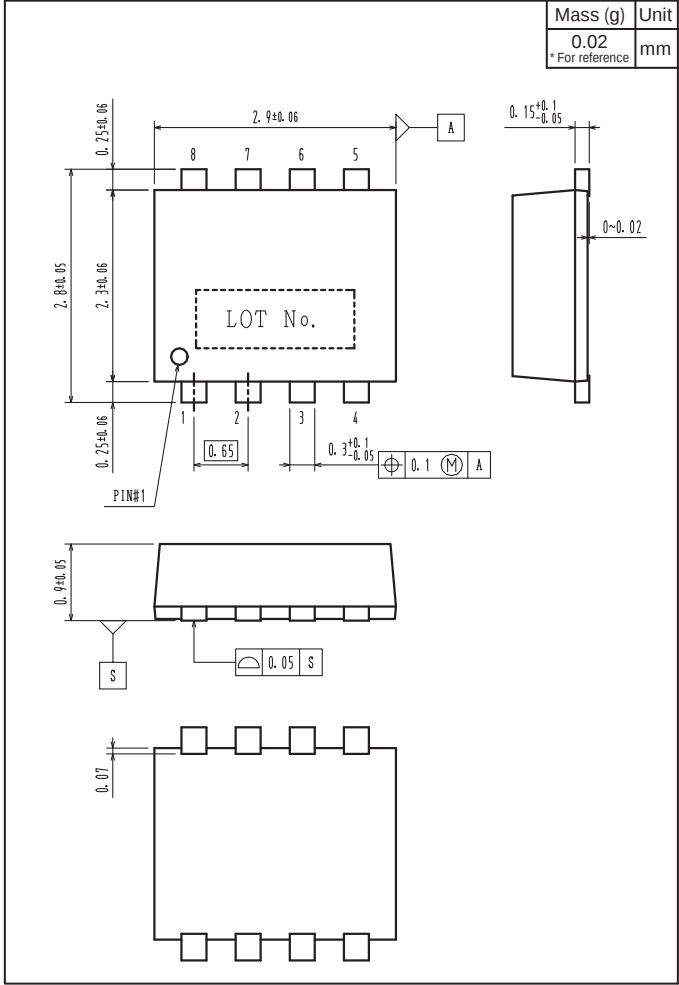




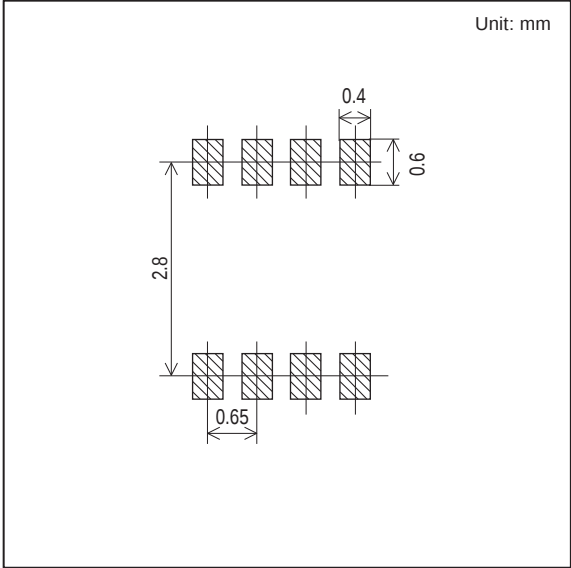




Outline Drawing
ECH8673-TL-H



Land Pattern Example



Note on usage : Since the ECH8673 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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