

ECH8601M-TL-H

N-Channel Power MOSFET 24V, 8A, 23mΩ, Dual ECH8

Features

- Low ON-resistance
- 2.5V drive
- Common-drain type
- Protection diode in
- Built-in gate protection resistor
- Best suited for LiB charging and discharging switch
- Halogen free compliance

Specifications

Absolute Maximum Ratings at Ta=25°C

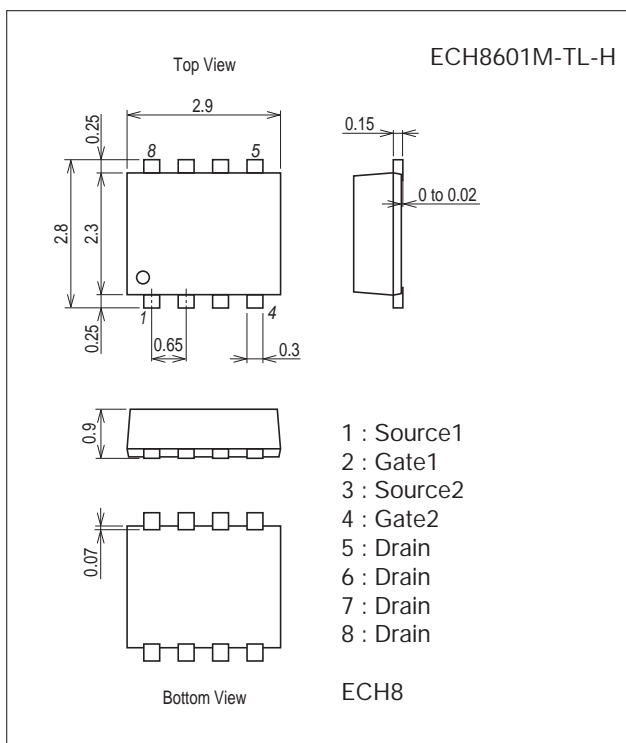
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V _{DSS}		24	V
Gate-to-Source Voltage	V _{GSS}		±12	V
Drain Current (DC)	I _D		8	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	60	A
Allowable Power Dissipation	P _D	When mounted on ceramic substrate (1000mm ² ×0.8mm) 1unit	1.5	W
Total Dissipation	P _T	When mounted on ceramic substrate (1000mm ² ×0.8mm)	1.6	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)

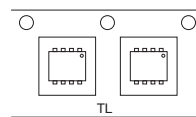
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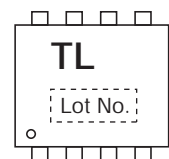
Product & Package Information

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

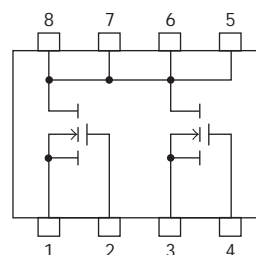
Packing Type : TL



Marking



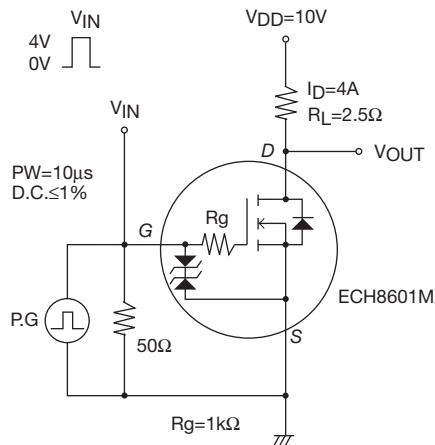
Electrical Connection



Electrical Characteristics at $T_a=25^{\circ}\text{C}$

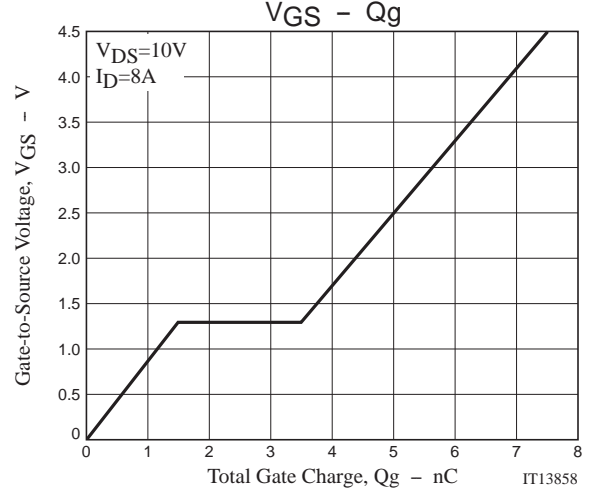
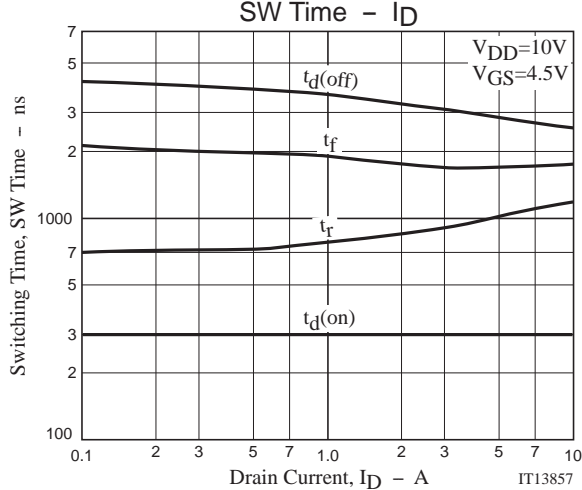
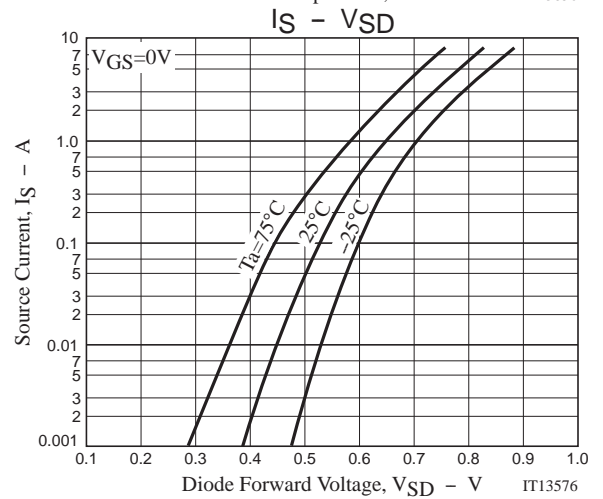
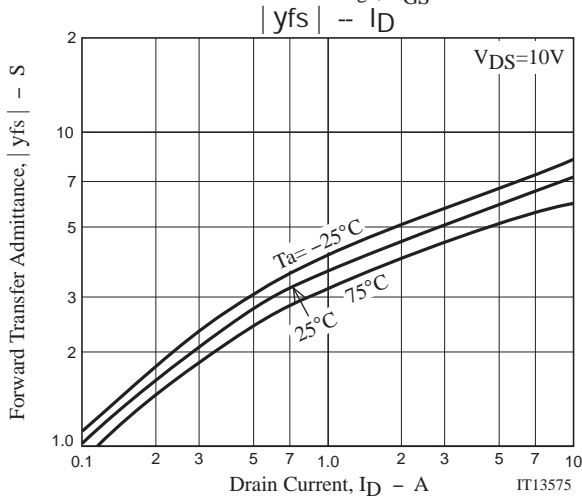
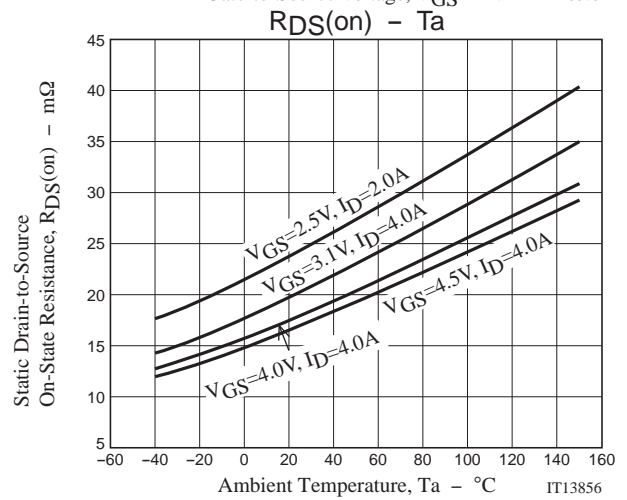
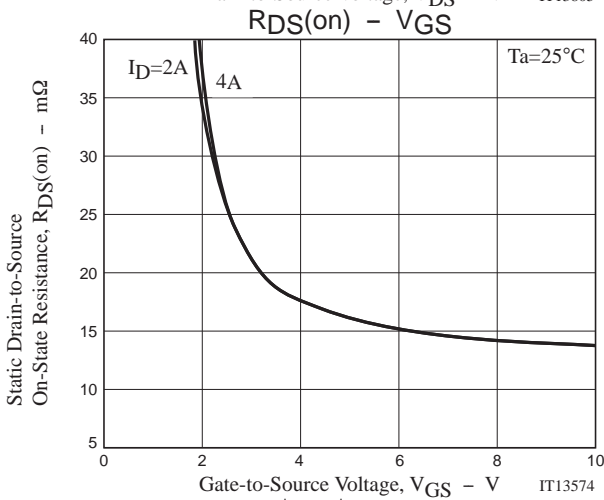
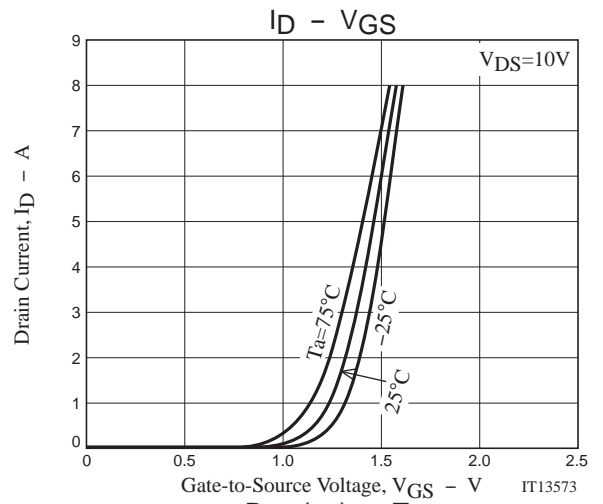
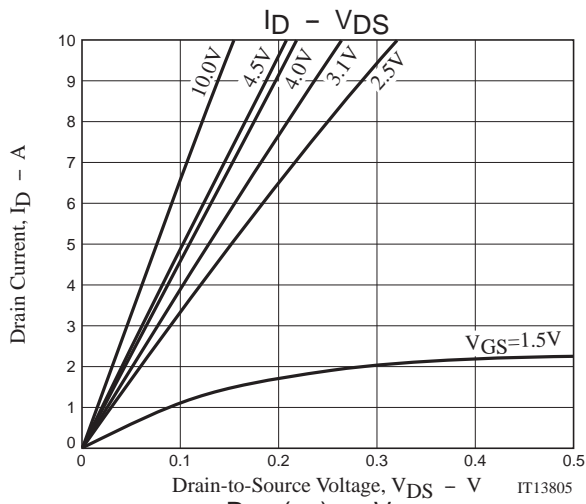
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$, $V_{GS}=0\text{V}$	24			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8\text{V}$, $V_{DS}=0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$, $I_D=1\text{mA}$	0.5		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$, $I_D=4\text{A}$	3.1	5.3		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=4\text{A}$, $V_{GS}=4.5\text{V}$	13.5	17	23	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=4\text{A}$, $V_{GS}=4.0\text{V}$	14	18	24	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D=4\text{A}$, $V_{GS}=3.1\text{V}$	14.5	20	30	$\text{m}\Omega$
	$R_{DS(on)4}$	$I_D=2\text{A}$, $V_{GS}=2.5\text{V}$	16	24	35	$\text{m}\Omega$
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		300		ns
Rise Time	t_r			1000		ns
Turn-OFF Delay Time	$t_{d(off)}$			3000		ns
Fall Time	t_f			1800		ns
Total Gate Charge	Q_g		$V_{DS}=10\text{V}$, $V_{GS}=4.5\text{V}$, $I_D=8\text{A}$		7.5	
Gate-to-Source Charge	Q_{gs}			1.5		nC
Gate-to-Drain "Miller" Charge	Q_{gd}			2.0		nC
Diode Forward Voltage	V_{SD}	$I_S=8\text{A}$, $V_{GS}=0\text{V}$			0.8	1.2

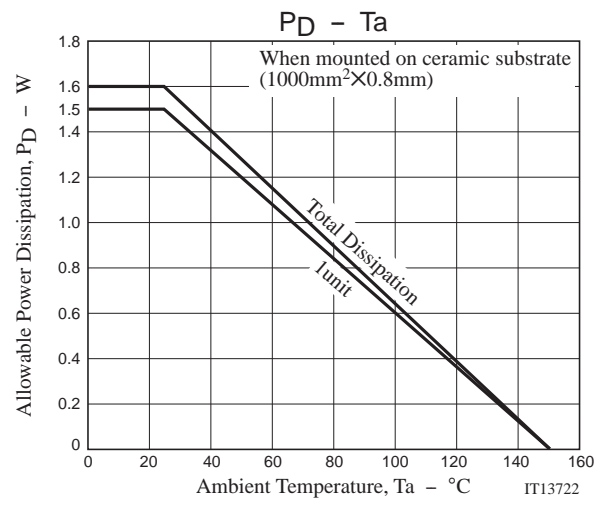
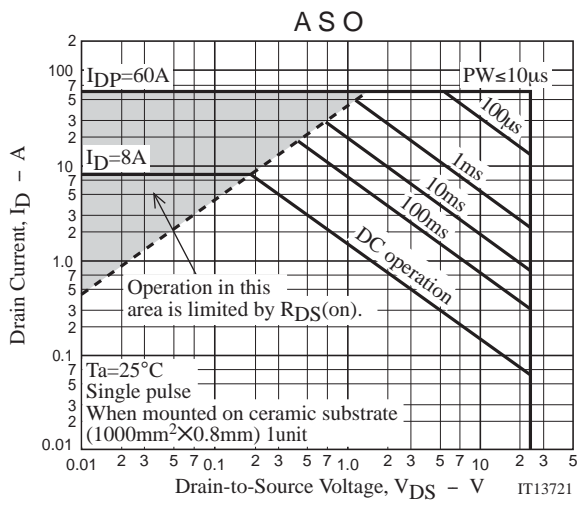
Switching Time Test Circuit



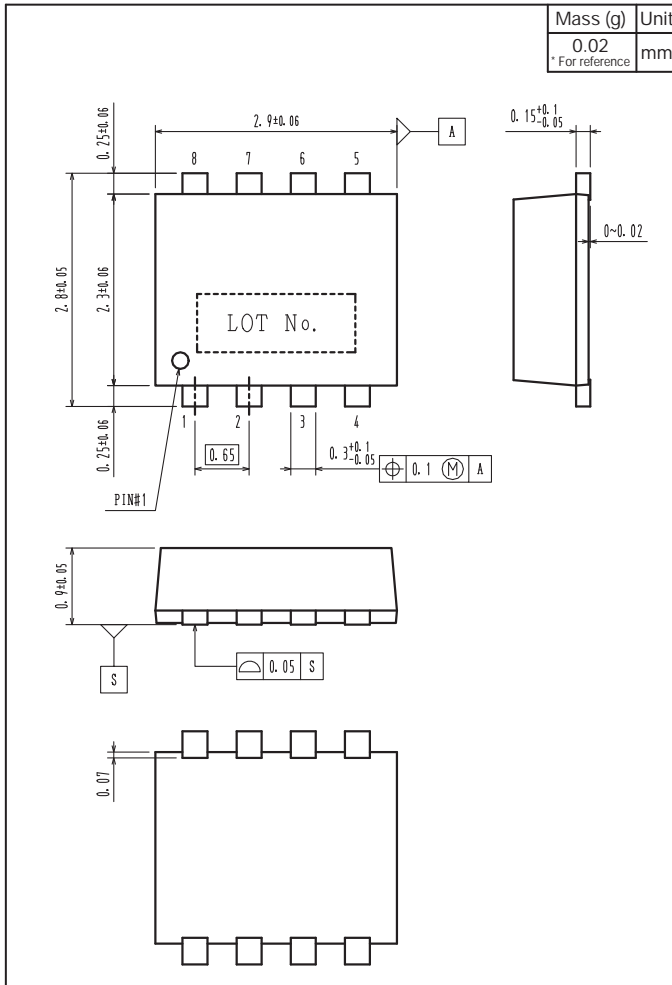
Ordering Information

Device	Package	Shipping	memo
ECH8601M-TL-H	ECH8	3,000pcs./reel	Pb Free and Halogen Free





Outline Drawing
ECH8601M-TL-H



Land Pattern Example

