

ECH8601M-C-TL-H

N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

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

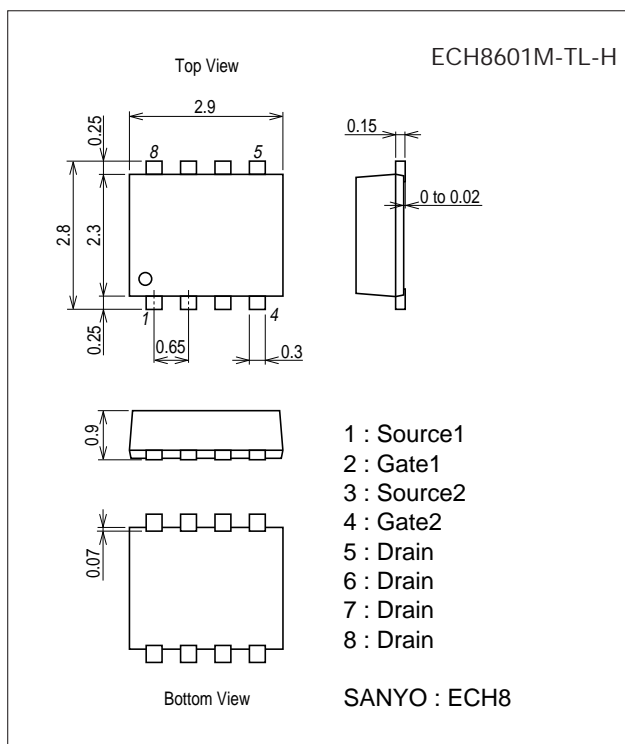
Absolute Maximum Ratings at Ta=25°C

| 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 cycles≤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 |

Package Dimensions

unit : mm (typ.)

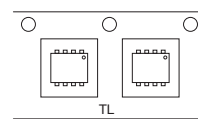
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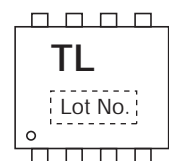
Product & Package Information

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

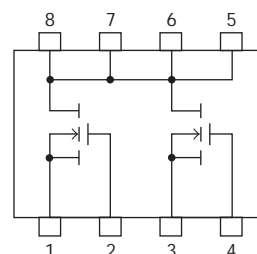
Packing Type : TL



Marking



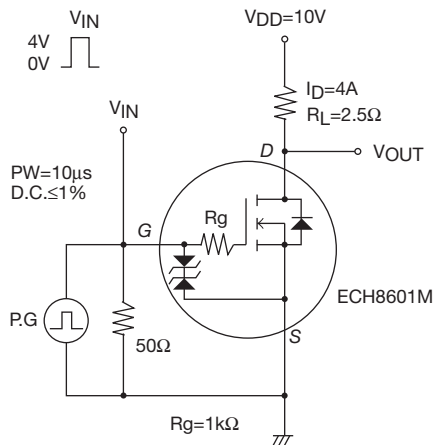
Electrical Connection



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

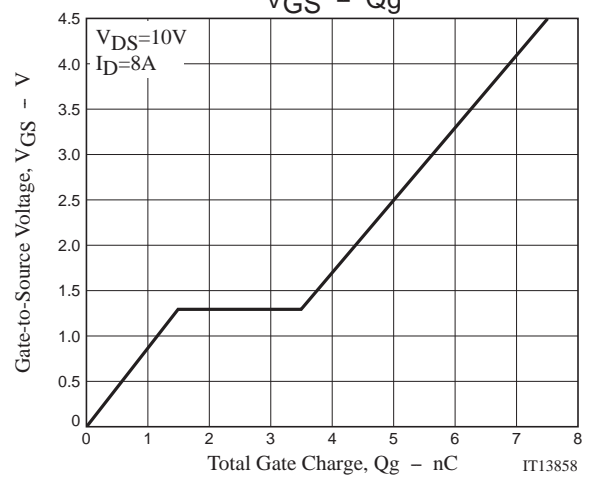
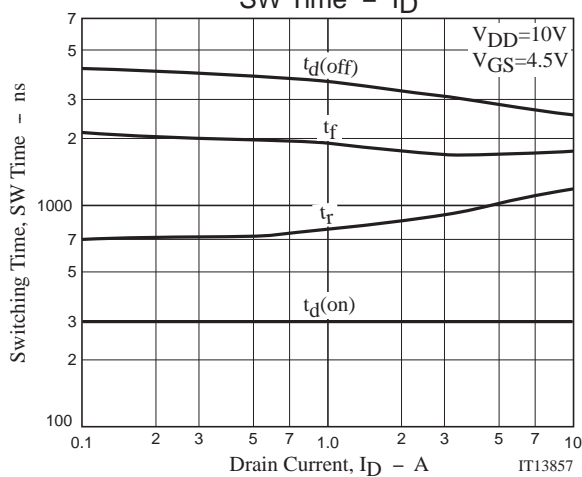
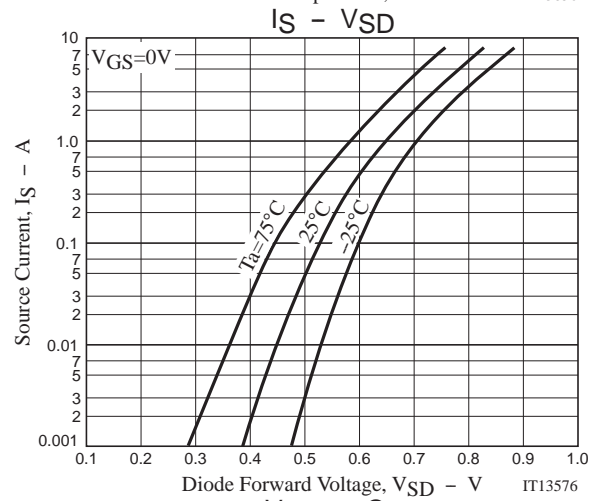
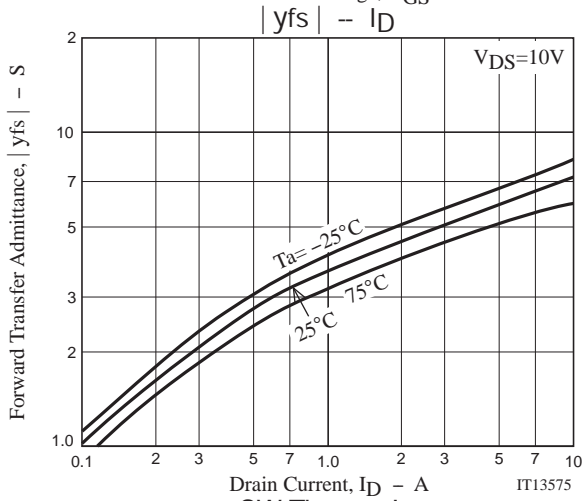
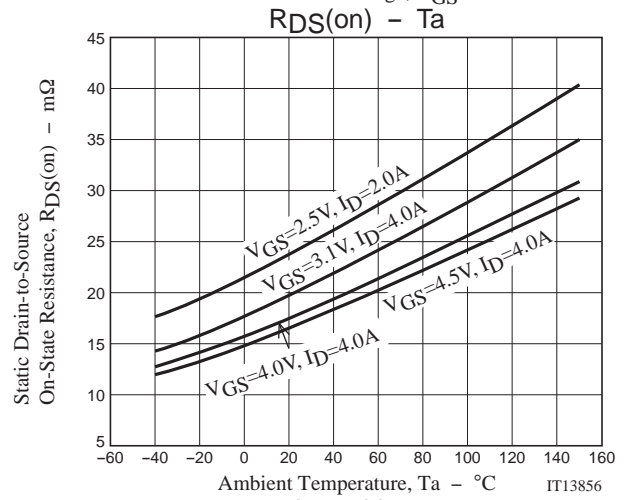
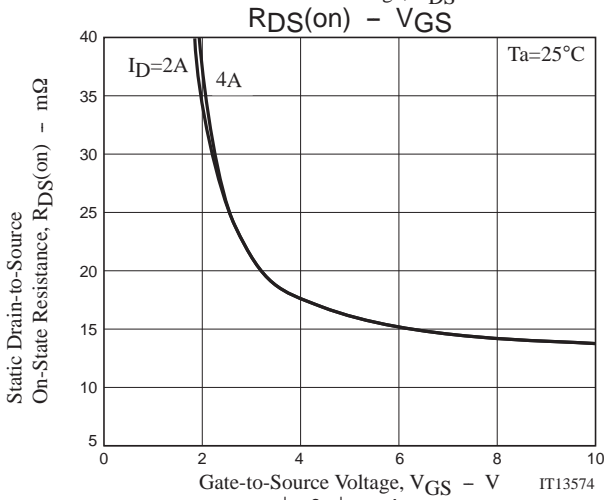
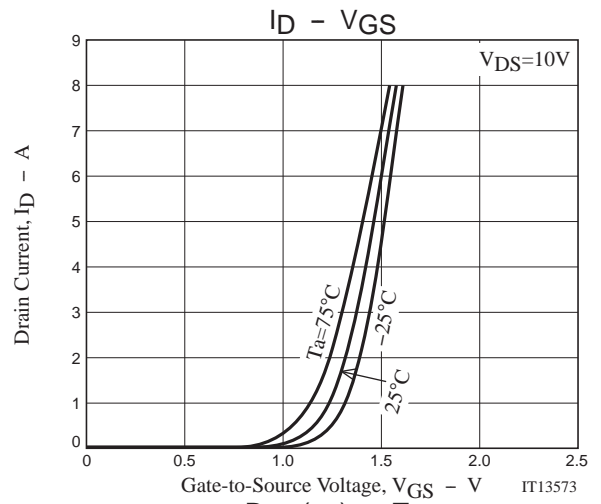
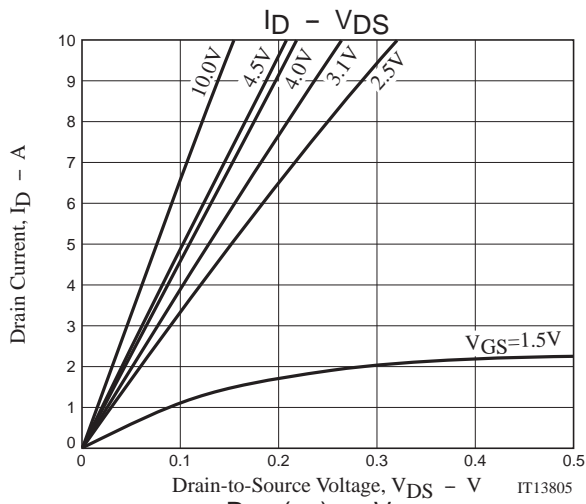
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|---------------|---|--|------|----------|------------------|
| | | | min. | typ. | max. | |
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D=1\text{mA}$, $V_{GS}=0\text{V}$ | 24 | | | V |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{DS}=20\text{V}$, $V_{GS}=0\text{V}$ | | | 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 |

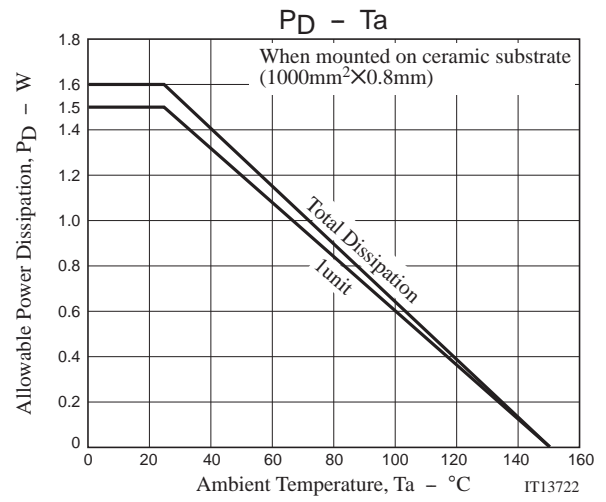
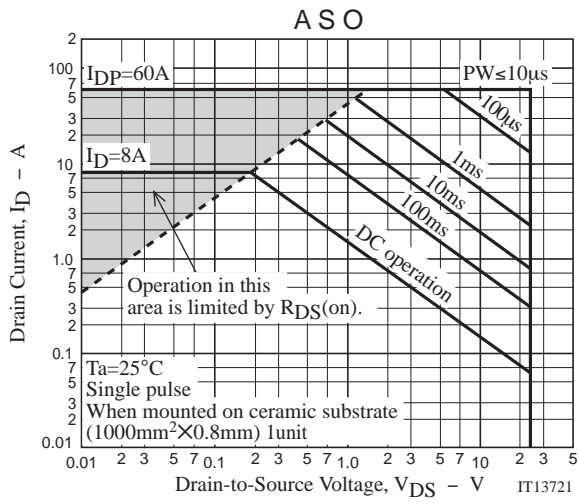
Switching Time Test Circuit



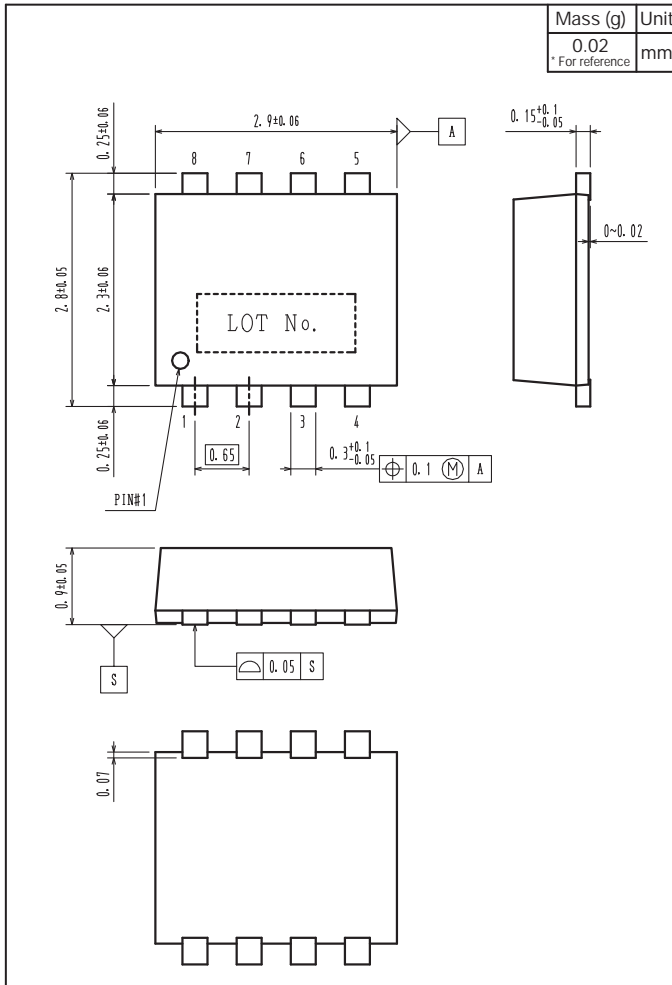
Ordering Information

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





Outline Drawing ECH8601M-C-TL-H



Land Pattern Example

