

Ordering number : ENA1174



SANYO Semiconductors

DATA SHEET

N-Channel Silicon MOSFET

ECH8601M — General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- Built-in gate protection resistor.
- 2.5V drive.
- Best suited for LiB charging and discharging switch.
- Common-drain type.
- 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 (1000mm²×0.8mm) 1unit	1.5	W
Total Dissipation	P _T	When mounted on ceramic substrate (1000mm²×0.8mm)	1.6	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

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	24			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =10V, I _D =1mA	0.5		1.3	V
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =4A	3.1	5.3		S

Marking : TL

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ECH8601M

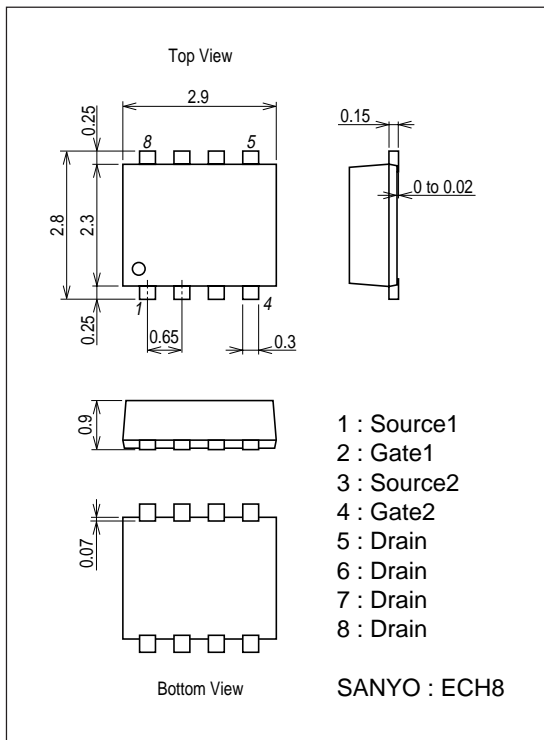
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =4A, V _{GS} =4.5V	13.5	17	23	mΩ
	R _{DS(on)2}	I _D =4A, V _{GS} =4.0V	14	18	24	mΩ
	R _{DS(on)3}	I _D =4A, V _{GS} =3.1V	14.5	20	30	mΩ
	R _{DS(on)4}	I _D =2A, V _{GS} =2.5V	16	24	35	mΩ
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit.		300		ns
Rise Time	t _r	See specified Test Circuit.		1000		ns
Turn-OFF Delay Time	t _{d(off)}	See specified Test Circuit.		3000		ns
Fall Time	t _f	See specified Test Circuit.		1800		ns
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V, I _D =8A		7.5		nC
Gate-to-Source Charge	Q _{gs}	V _{DS} =10V, V _{GS} =4.5V, I _D =8A		1.5		nC
Gate-to-Drain "Miller" Charge	Q _{gd}	V _{DS} =10V, V _{GS} =4.5V, I _D =8A		2.0		nC
Diode Forward Voltage	V _{SD}	I _S =8A, V _{GS} =0V		0.8	1.2	V

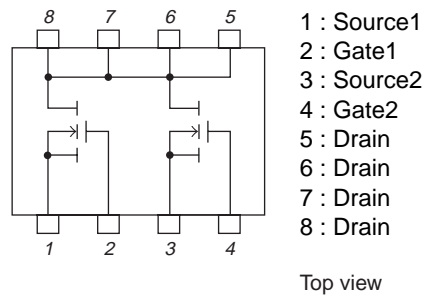
Package Dimensions

unit : mm (typ)

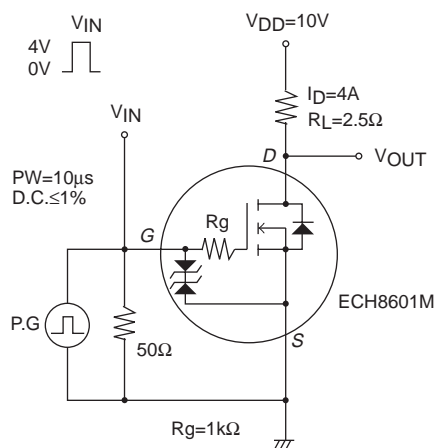
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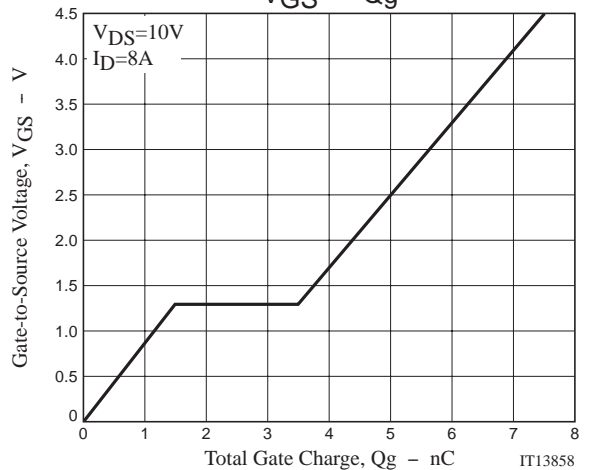
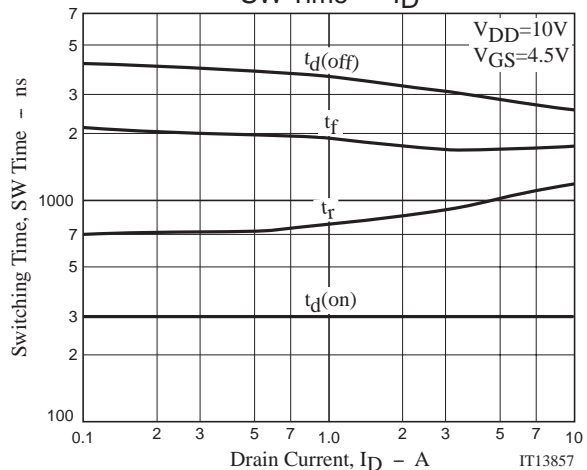
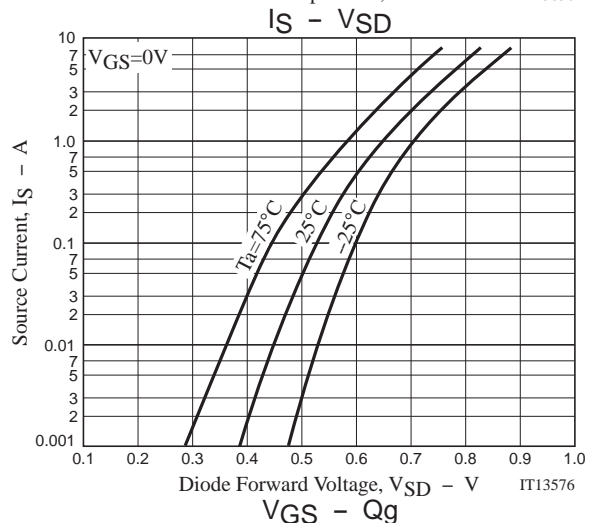
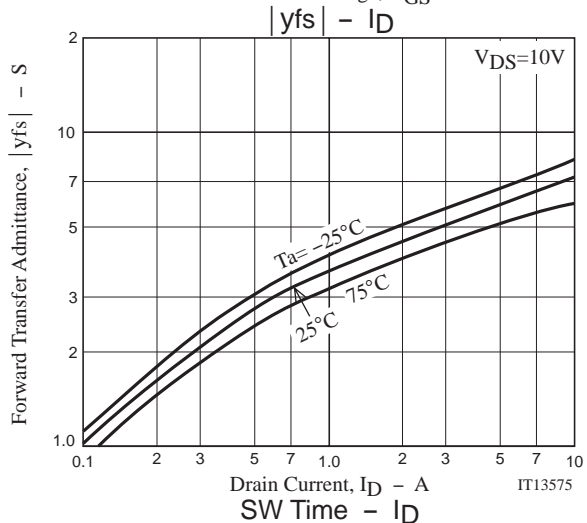
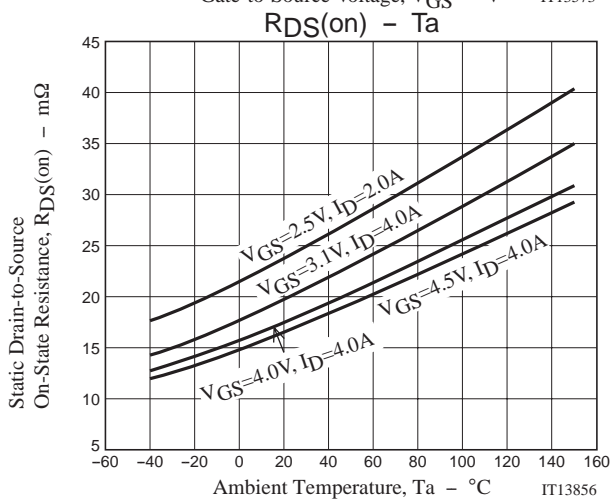
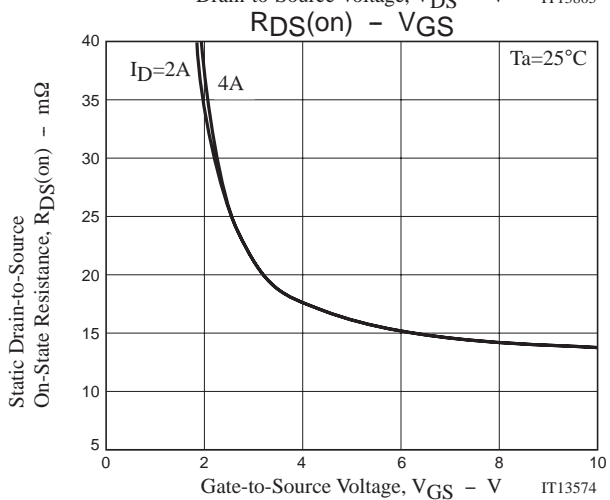
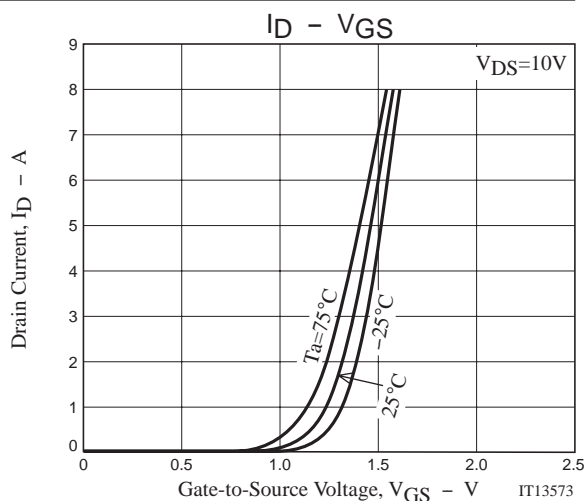
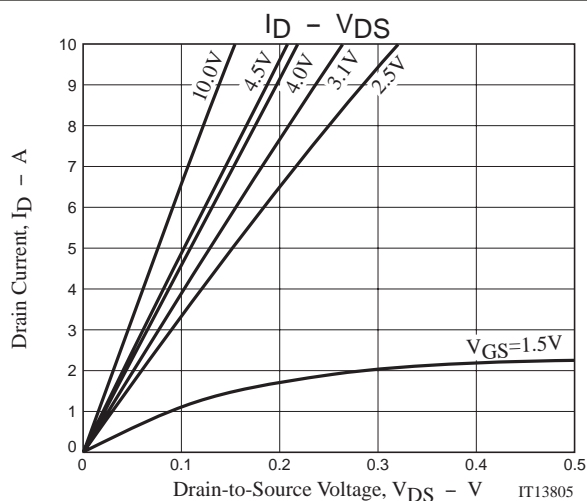
Electrical Connection



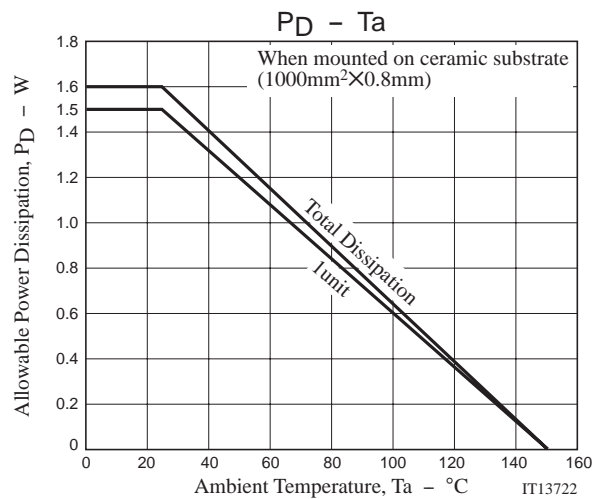
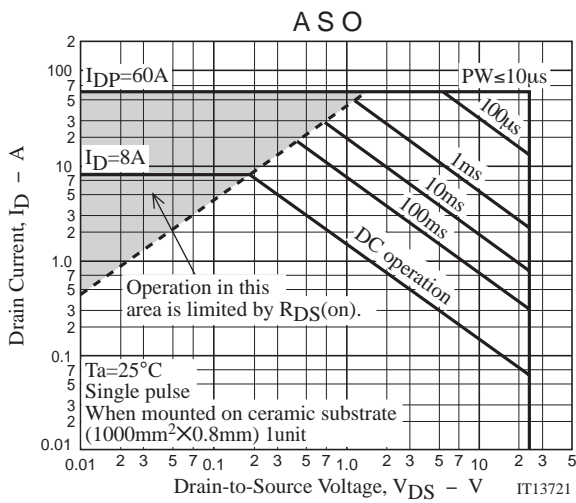
Switching Time Test Circuit



ECH8601M



ECH8601M



Note on usage : Since the ECH8601M is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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