



SANYO Semiconductors

## DATA SHEET

# ECH8602M — N-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

- 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 <sub>DSS</sub>		30	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±12	V
Drain Current (DC)	I <sub>D</sub>		6	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	60	A
Allowable Power Dissipation	P <sub>D</sub>	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm) 1unit	1.4	W
Total Dissipation	P <sub>T</sub>	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm)	1.5	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	I <sub>D</sub> =1mA, V <sub>GS</sub> =0V	30			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V			1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±8V, V <sub>DS</sub> =0V			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1mA	0.5		1.3	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =3A		5		S

Marking : TZ

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# ECH8602M

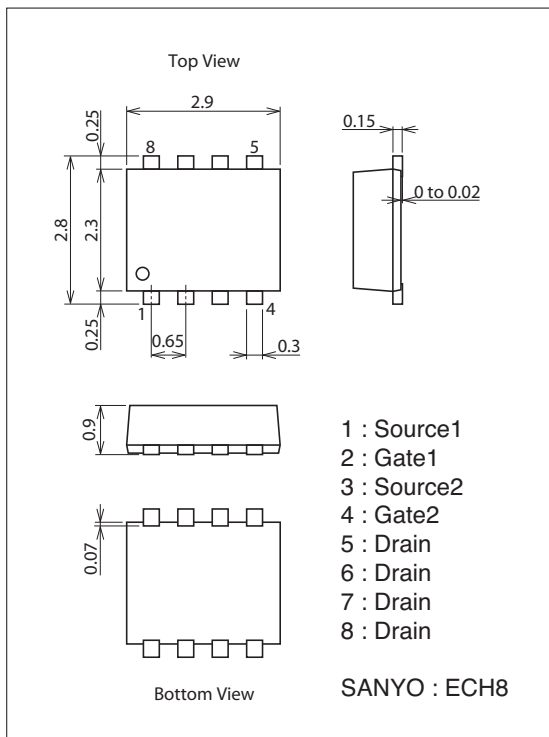
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=3A, V_{GS}=4.5V$	15.4	22	30	$m\Omega$
	$R_{DS(on)2}$	$I_D=3A, V_{GS}=4.0V$	16.1	23	31	$m\Omega$
	$R_{DS(on)3}$	$I_D=1.5A, V_{GS}=2.5V$	18	30	44	$m\Omega$
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		305		ns
Rise Time	$t_r$	See specified Test Circuit.		490		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		3500		ns
Fall Time	$t_f$	See specified Test Circuit.		1200		ns
Total Gate Charge	$Q_g$	$V_{DS}=15V, V_{GS}=4.5V, I_D=6A$		7.5		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=15V, V_{GS}=4.5V, I_D=6A$		1.7		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=15V, V_{GS}=4.5V, I_D=6A$		1.6		nC
Diode Forward Voltage	$V_{SD}$	$I_S=6A, V_{GS}=0V$		0.8	1.2	V

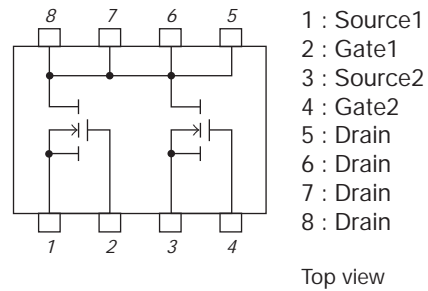
## Package Dimensions

unit : mm (typ)

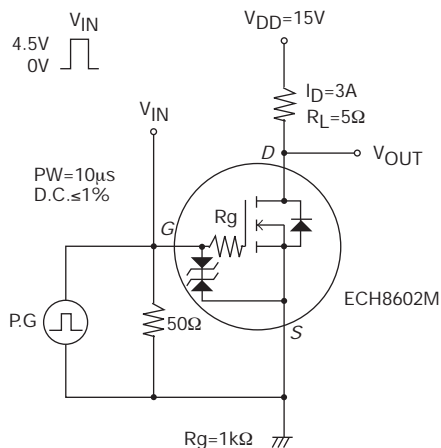
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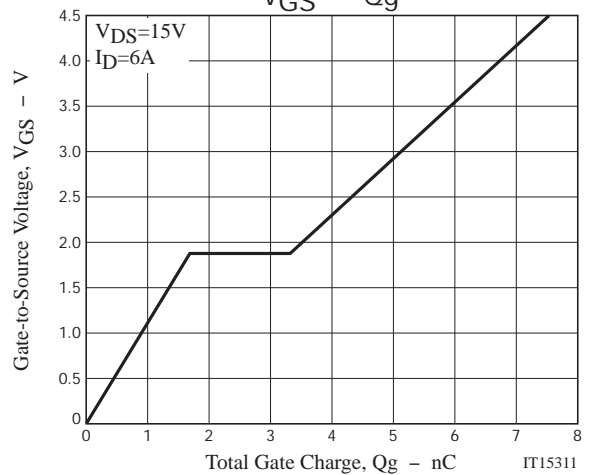
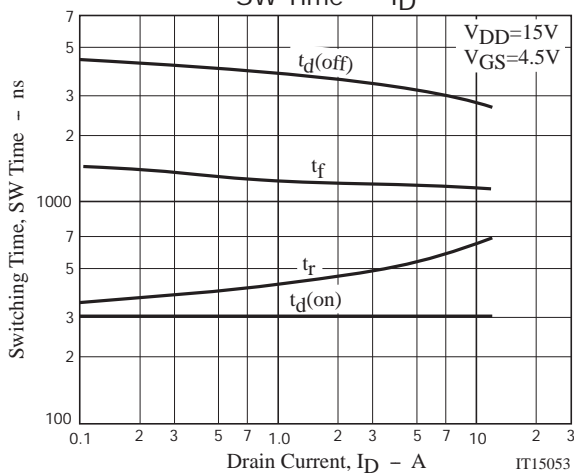
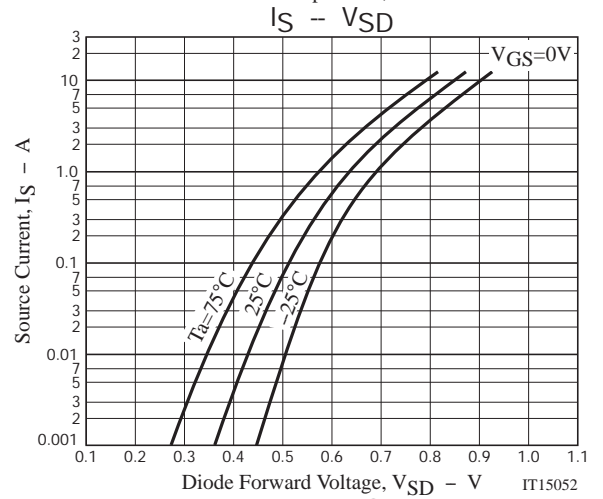
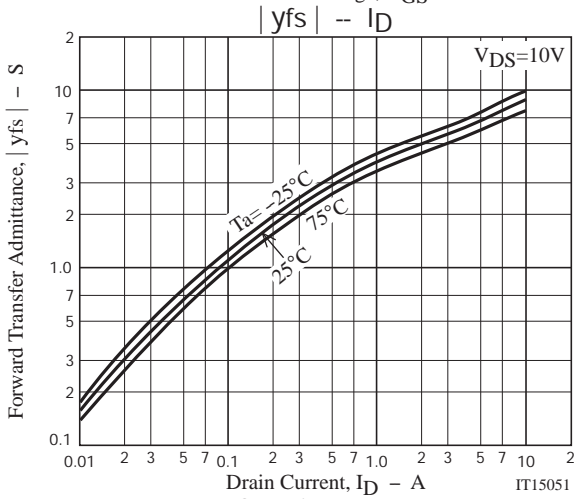
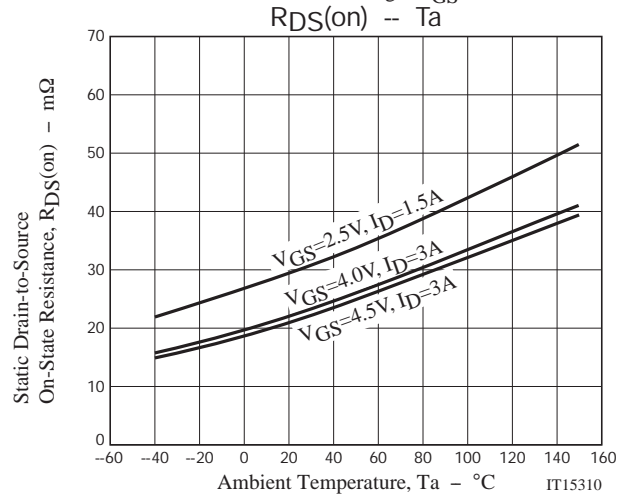
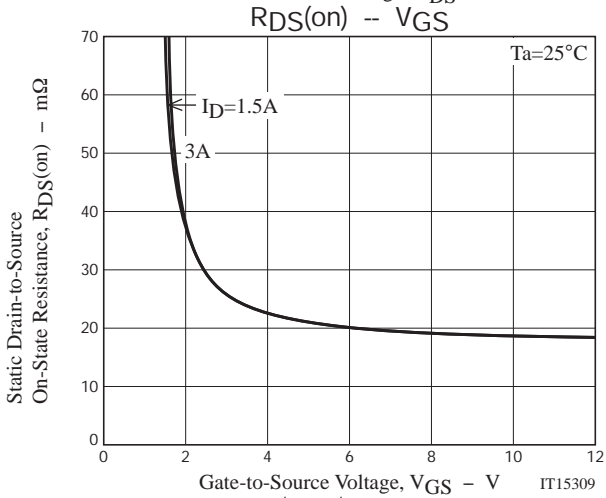
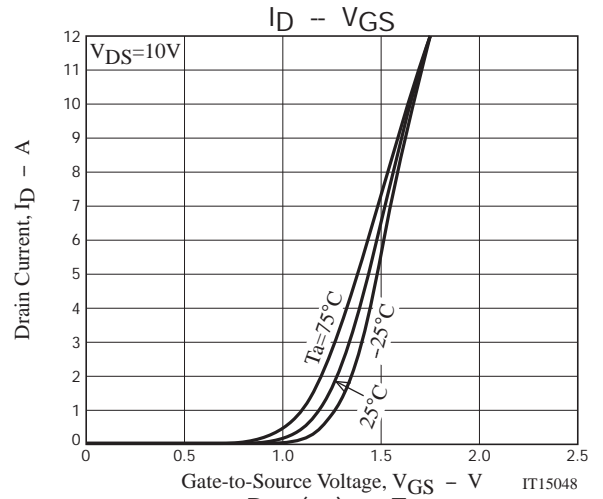
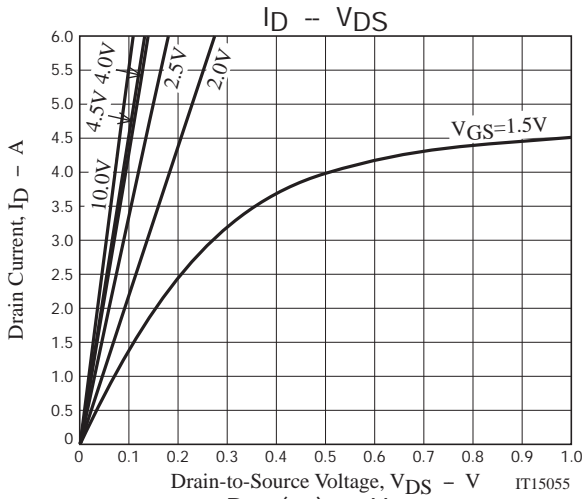


## Electrical Connection

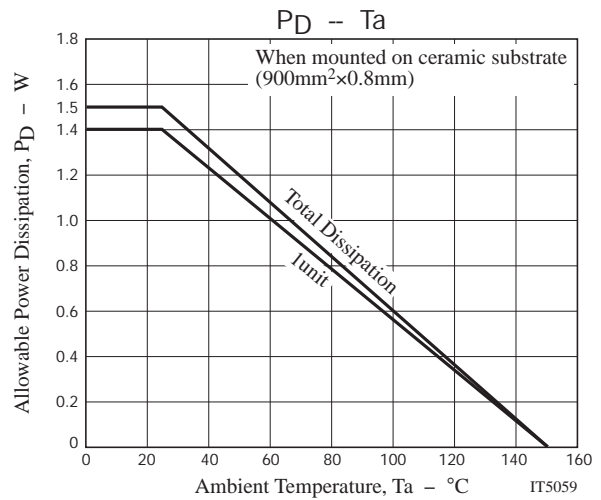
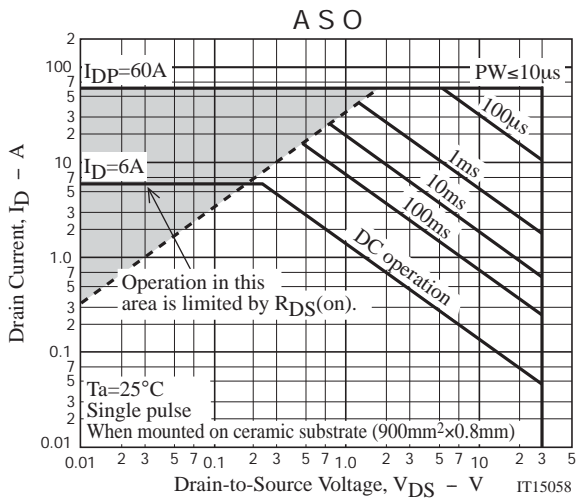


## Switching Time Test Circuit





# ECH8602M



Note on usage : Since the ECH8602M is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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