



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 _{DSS}		30	V
Gate-to-Source Voltage	V _{GSS}		±12	V
Drain Current (DC)	I _D		6	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	60	A
Allowable Power Dissipation	P _D	When mounted on ceramic substrate (900mm ² ×0.8mm) 1unit	1.4	W
Total Dissipation	P _T	When mounted on ceramic substrate (900mm ² ×0.8mm)	1.5	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	30			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, 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 =3A		5		S

Marking : TZ

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ECH8602M

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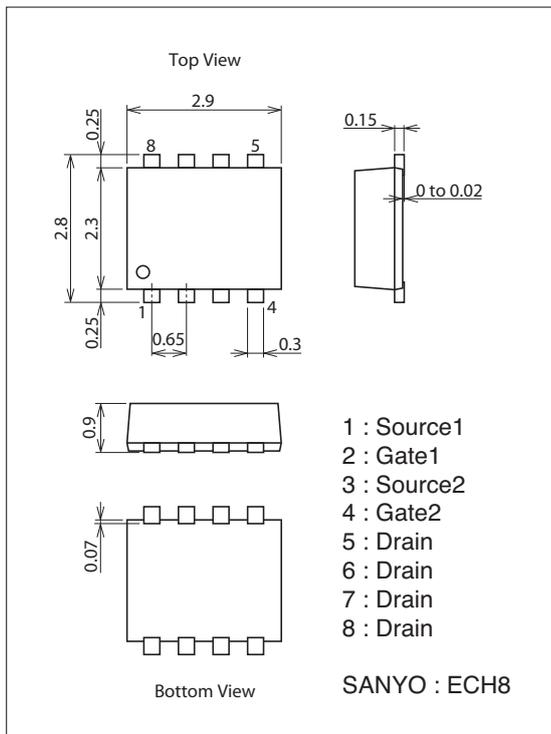
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=3A, V_{GS}=4.5V$	15.4	22	30	$m\Omega$
	$R_{DS(on)2}$	$I_D=3A, V_{GS}=4.0V$	16.1	23	31	$m\Omega$
	$R_{DS(on)3}$	$I_D=1.5A, V_{GS}=2.5V$	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

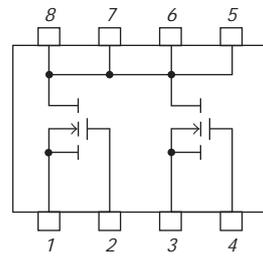
Package Dimensions

unit : mm (typ)

7011A-003



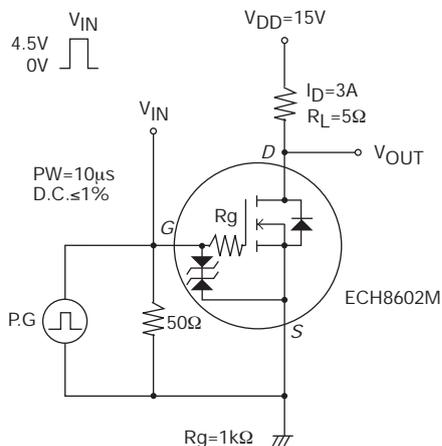
Electrical Connection

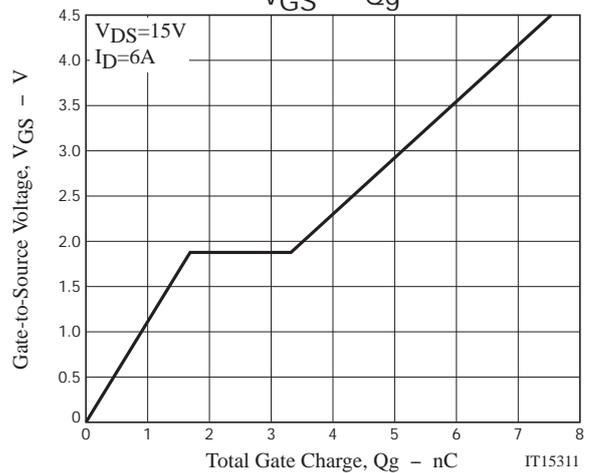
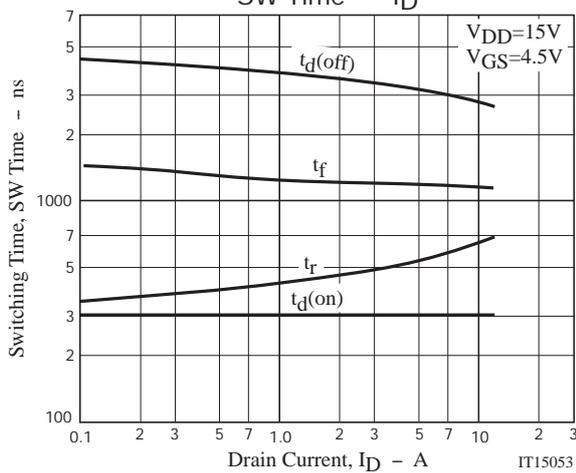
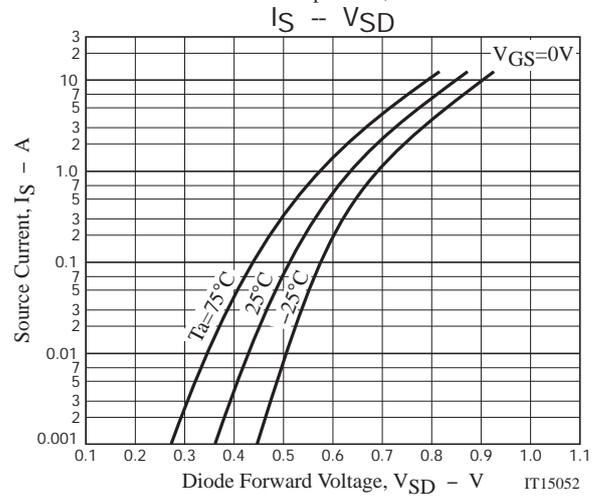
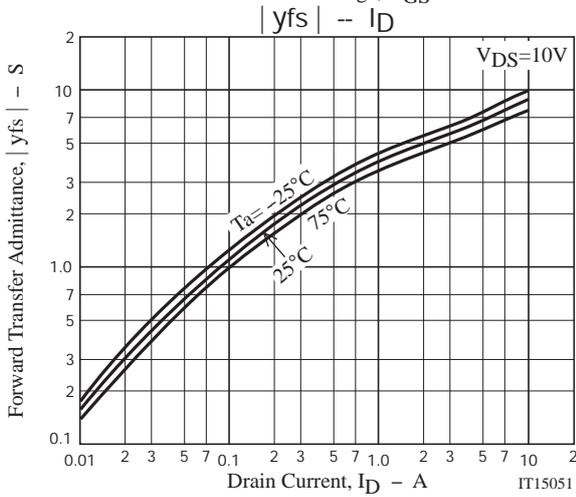
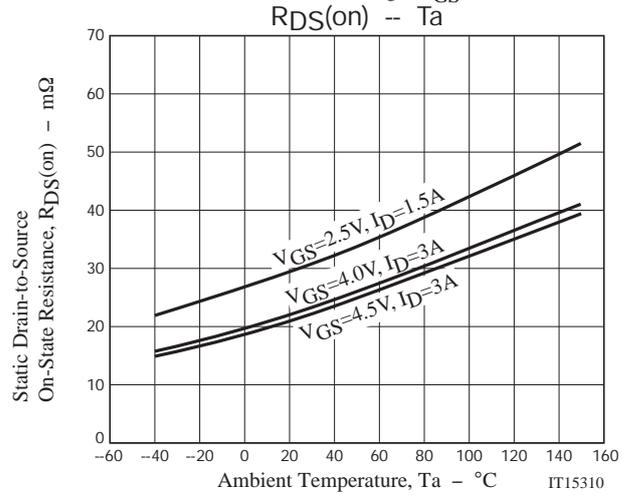
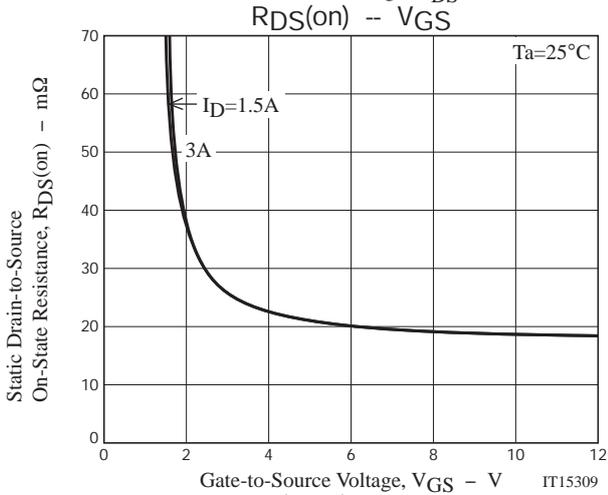
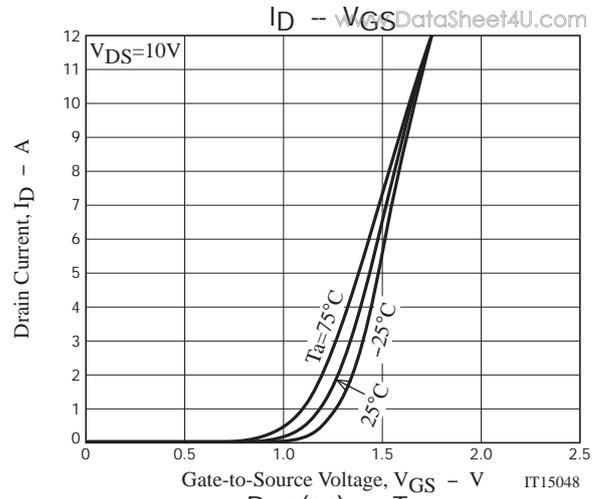
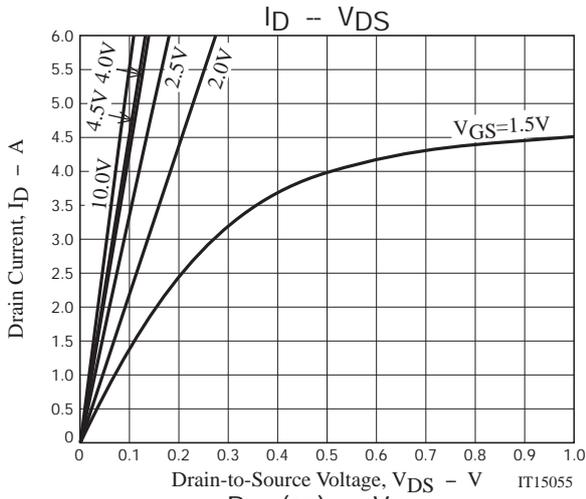


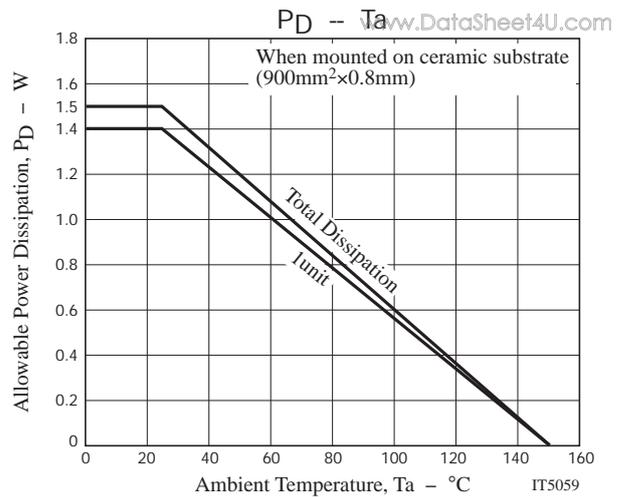
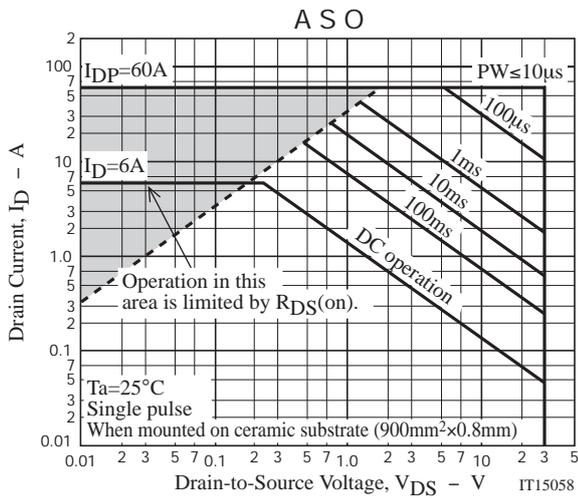
- 1 : Source1
- 2 : Gate1
- 3 : Source2
- 4 : Gate2
- 5 : Drain
- 6 : Drain
- 7 : Drain
- 8 : Drain

Top view

Switching Time Test Circuit







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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