Ordering number : EN8719

SANYO Semiconductors

DATA SHEET

N-Channel Silicon MOSFET

ECH8622R — General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- Best suited for lithium battery applications.
- 2.5V drive.
- Composite type, facilitating high-density mounting.
- Drain common specifications.

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		7	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	40	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm²×0.8mm) 1unit	1.4	W
Total Dissipation	P_T	Mounted on a ceramic board (900mm²×0.8mm)	1.5	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−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	$\|yfs\|$	V_{DS}=10V, I_D=3.5A	6	10		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	I_D=4A, V_{GS}=4.5V	12.6	18	23	mΩ
	$R_{DS(on)2}$	I_D=4A, V_{GS}=4.0V	13.3	19	25	mΩ
	$R_{DS(on)3}$	I_D=4A, V_{GS}=3.1V	14.3	22	29	mΩ
	$R_{DS(on)4}$	I_D=2A, V_{GS}=2.5V	15	25	34	mΩ
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		1220		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		180		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		140		pF

Marking : WG

Continued on next page.

SANYO Semiconductor Co., Ltd.
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

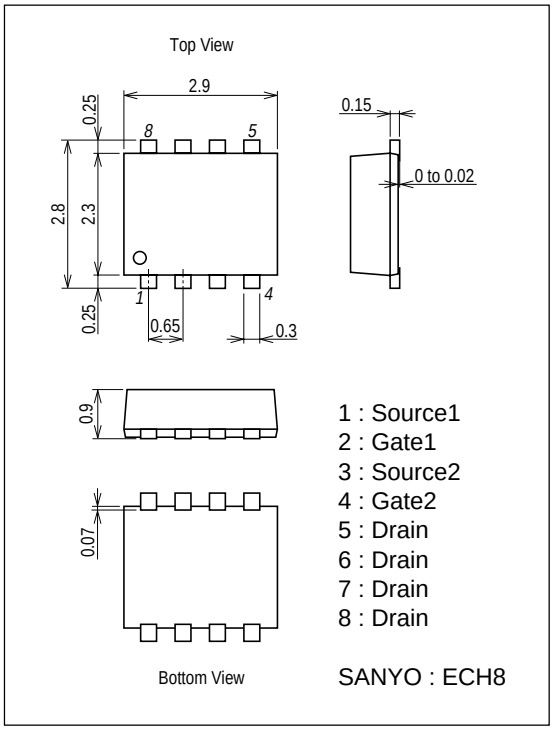
Continued from preceding page.

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		585		ns
Rise Time	t_r	See specified Test Circuit.		1680		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		4960		ns
Fall Time	t_f	See specified Test Circuit.		2660		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=4.5V, I_D=7A		14		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=4.5V, I_D=7A		2		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=10V, V_{GS}=4.5V, I_D=7A		4.3		nC
Diode Forward Voltage	V_{SD}	I_S=7A, V_{GS}=0V		0.84	1.2	V

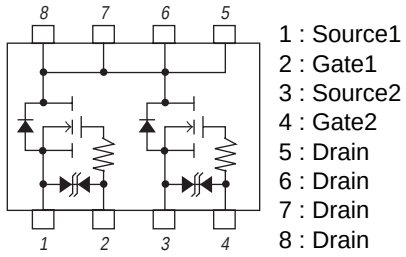
Package Dimensions

unit : mm

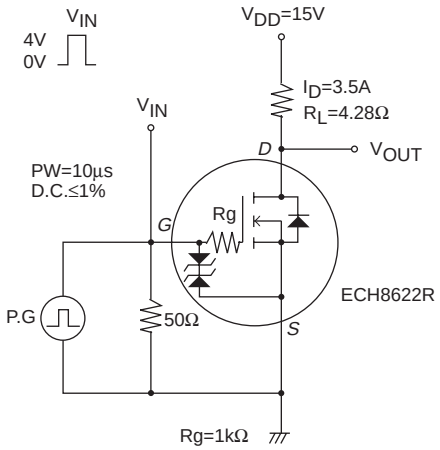
7011A-003

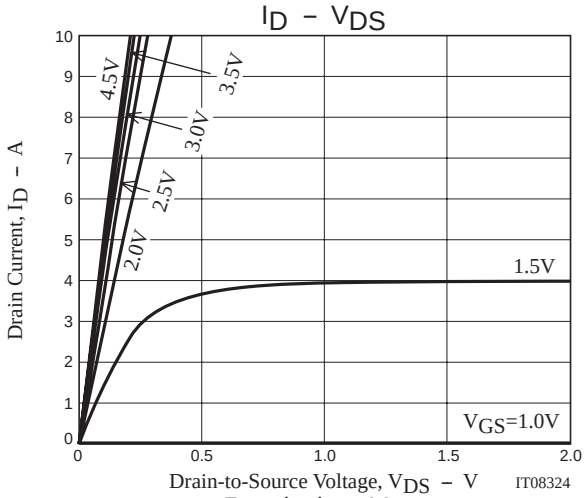


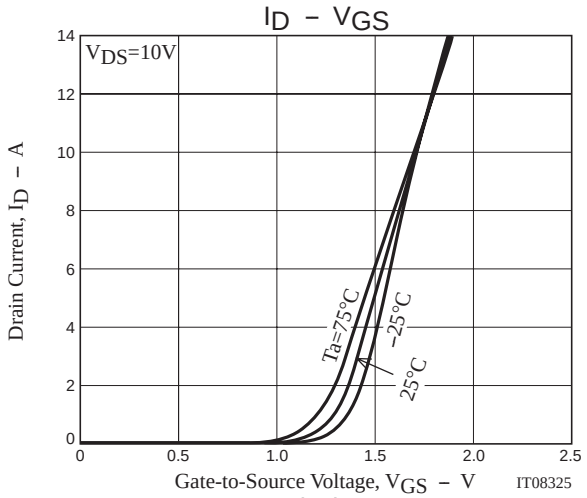
Electrical Connection

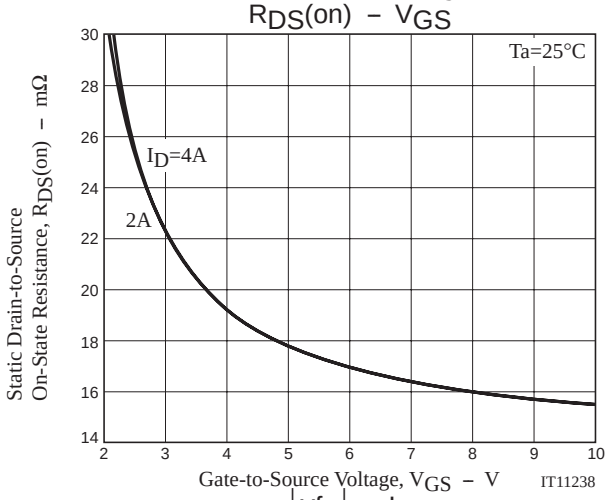


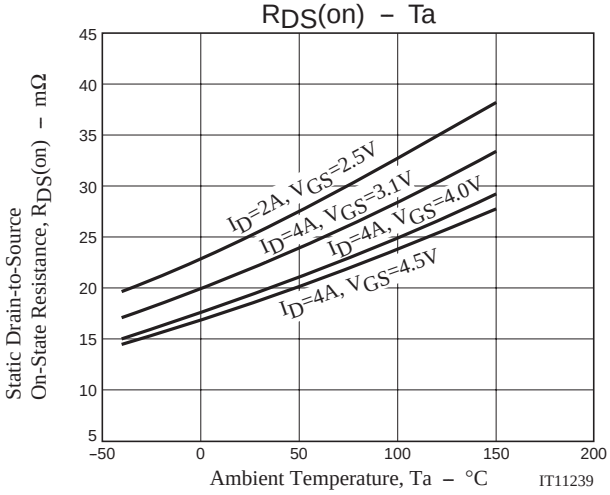
Switching Time Test Circuit

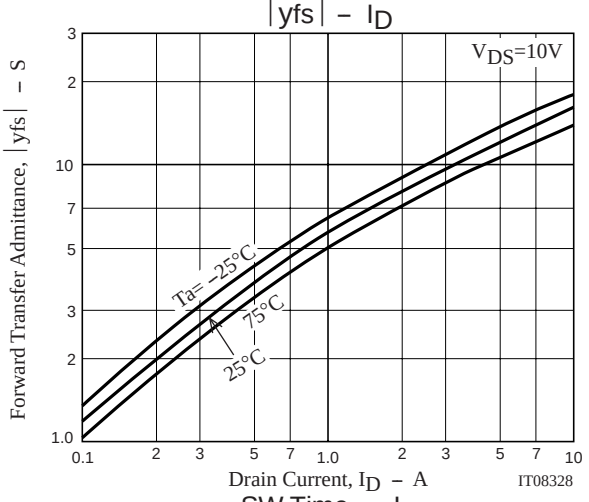


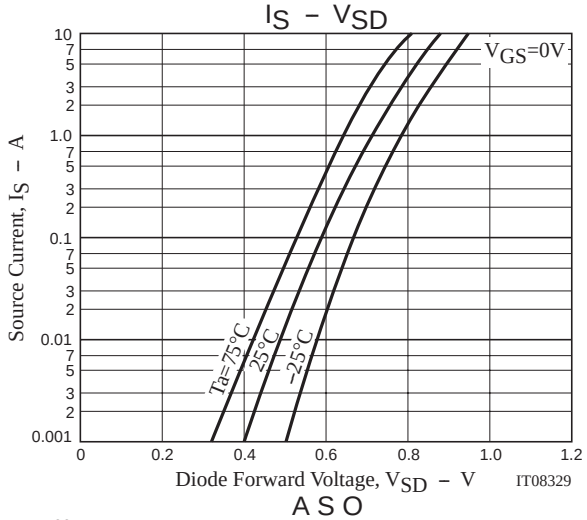

I_D – V_{DS}
Drain Current, I_D – A
Drain-to-Source Voltage, V_{DS} – V
IT08324
4.5V
3.5V
3.0V
2.5V
2.0V
1.5V
V_{GS}=1.0V

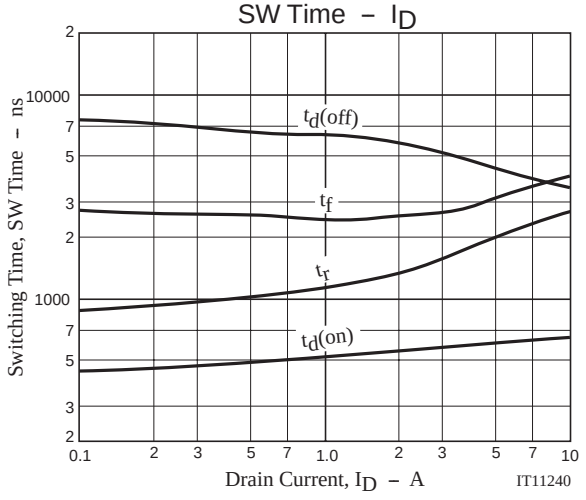

I_D – V_{GS}
V_{DS}=10V
Drain Current, I_D – A
Gate-to-Source Voltage, V_{GS} – V
IT08325
Ta=75°C
–25°C
25°C

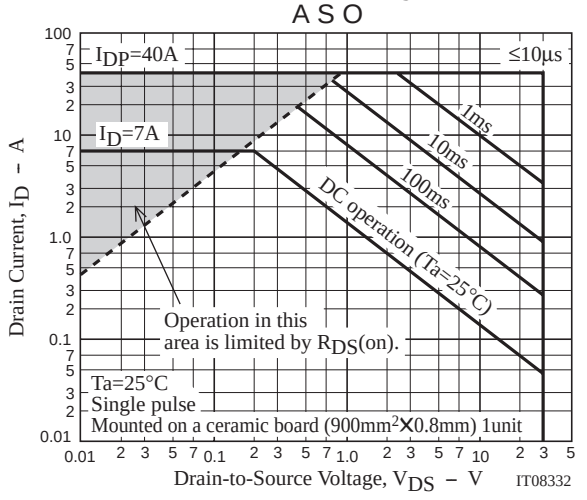

R_{DS}(on) – V_{GS}
Ta=25°C
I_D=4A
2A
Static Drain-to-Source On-State Resistance, R_{DS}(on) – mΩ
Gate-to-Source Voltage, V_{GS} – V
IT11238

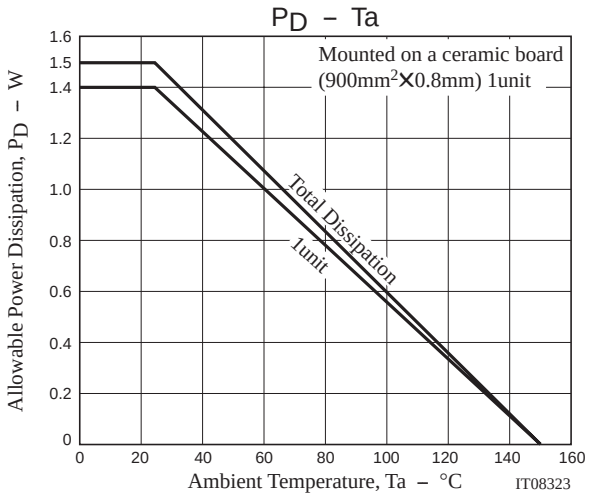

R_{DS}(on) – Ta
I_D=2A, V_{GS}=2.5V
I_D=4A, V_{GS}=3.1V
I_D=4A, V_{GS}=4.0V
I_D=4A, V_{GS}=4.5V
Static Drain-to-Source On-State Resistance, R_{DS}(on) – mΩ
Ambient Temperature, Ta – °C
IT11239


|yfs| – I_D
V_{DS}=10V
Ta= –25°C
75°C
25°C
Forward Transfer Admittance, |yfs| – S
Drain Current, I_D – A
IT08328


I_S – V_{SD}
V_{GS}=0V
Ta=75°C
25°C
–25°C
Source Current, I_S – A
Diode Forward Voltage, V_{SD} – V
IT08329


SW Time – I_D
t_d(off)
t_f
t_r
t_d(on)
Switching Time, SW Time – ns
Drain Current, I_D – A
IT11240


A S O
I_{DP}=40A
≤10μs
I_D=7A
1ms
10ms
100ms
DC operation (Ta=25°C)
Operation in this area is limited by R_{DS}(on).
Ta=25°C
Single pulse
Mounted on a ceramic board (900mm²×0.8mm) 1unit
Drain Current, I_D – A
Drain-to-Source Voltage, V_{DS} – V
IT08332



Note on usage : Since the ECH8622R is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.