



N-Channel Silicon MOSFET

ECH8649 — General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- 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}		20	V
Gate-to-Source Voltage	V _{GSS}		±10	V
Drain Current (DC)	I _D		7.5	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	40	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (900mm ² ×0.8mm) 1unit	1.4	W
Total Dissipation	P _T	Mounted on a ceramic board (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	20			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	4.2	7		S

Marking : WT

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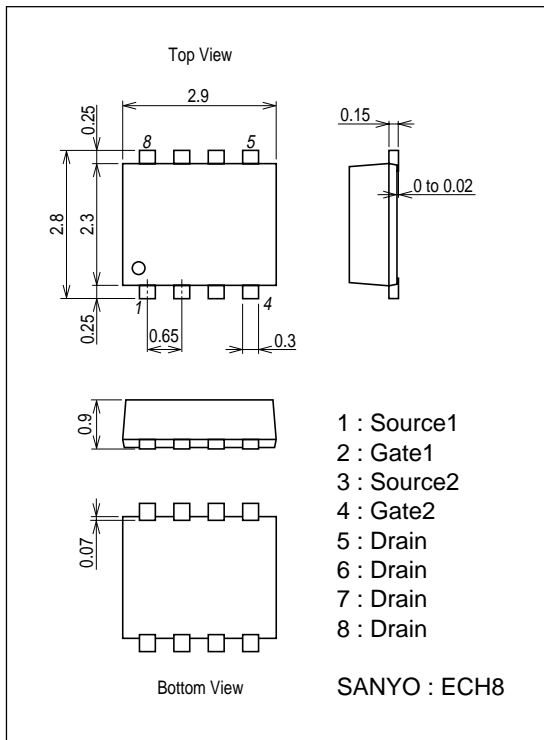
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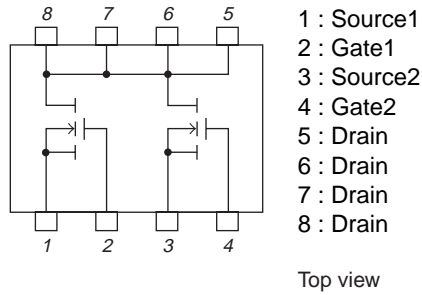
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =4A, V _{GS} =4.5V	9	13	17	mΩ
	R _{DS(on)2}	I _D =4A, V _{GS} =4.0V	9.4	13.5	18	mΩ
	R _{DS(on)3}	I _D =4A, V _{GS} =3.1V	11	16	22	mΩ
	R _{DS(on)4}	I _D =2A, V _{GS} =2.5V	12.5	18	26	mΩ
Input Capacitance	C _{iss}	V _{DS} =10V, f=1MHz		1060		pF
Output Capacitance	C _{oss}	V _{DS} =10V, f=1MHz		180		pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} =10V, f=1MHz		135		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit.		17.5		ns
Rise Time	t _r	See specified Test Circuit.		120		ns
Turn-OFF Delay Time	t _{d(off)}	See specified Test Circuit.		68		ns
Fall Time	t _f	See specified Test Circuit.		80		ns
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V, I _D =7.5A		10.8		nC
Gate-to-Source Charge	Q _{gs}	V _{DS} =10V, V _{GS} =4.5V, I _D =7.5A		2.1		nC
Gate-to-Drain "Miller" Charge	Q _{gd}	V _{DS} =10V, V _{GS} =4.5V, I _D =7.5A		2.9		nC
Diode Forward Voltage	V _{SD}	I _S =7.5A, V _{GS} =0V		0.74	1.2	V

Package Dimensions

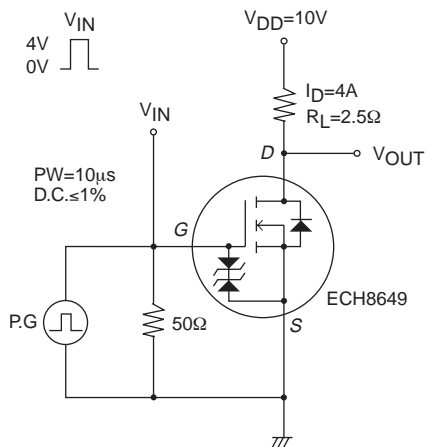
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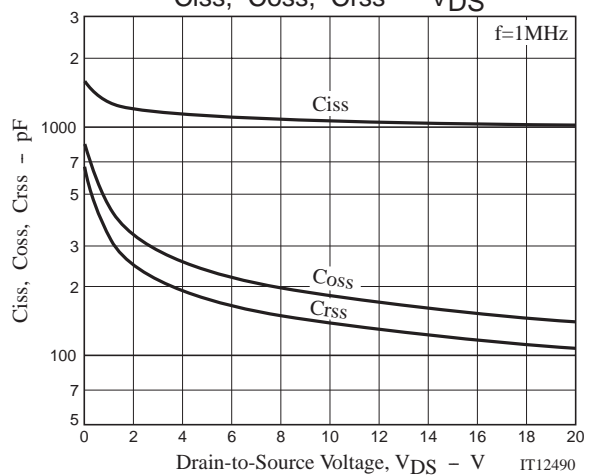
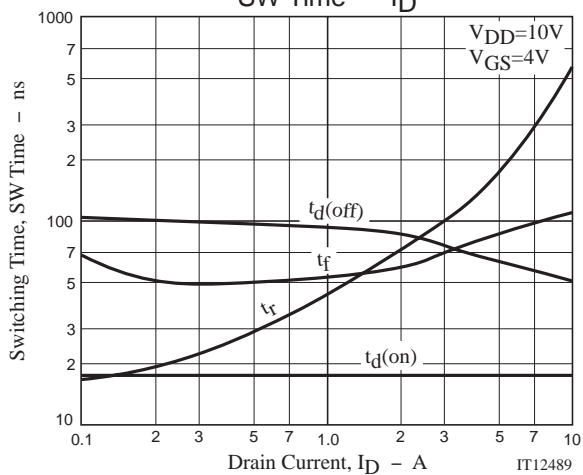
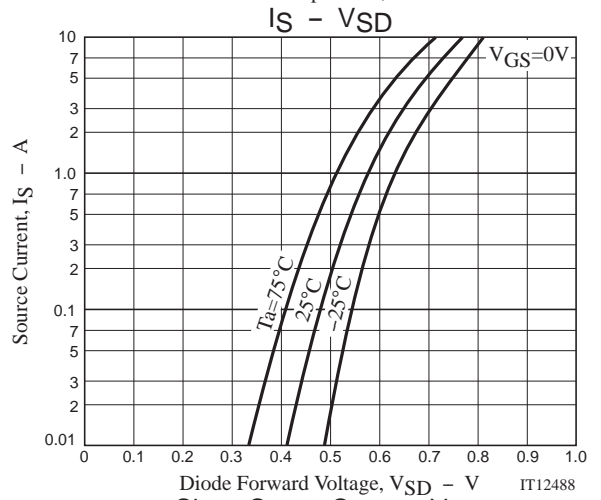
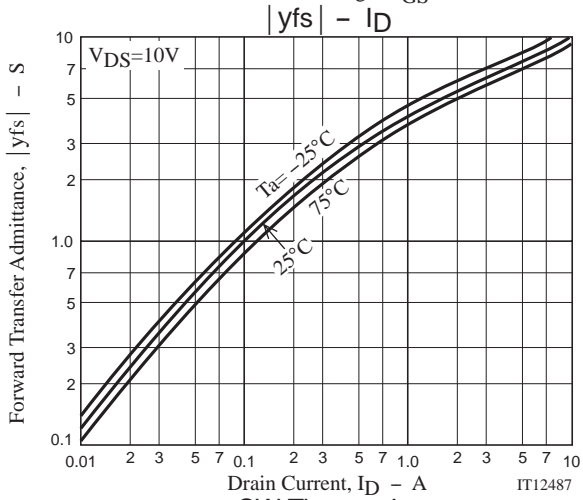
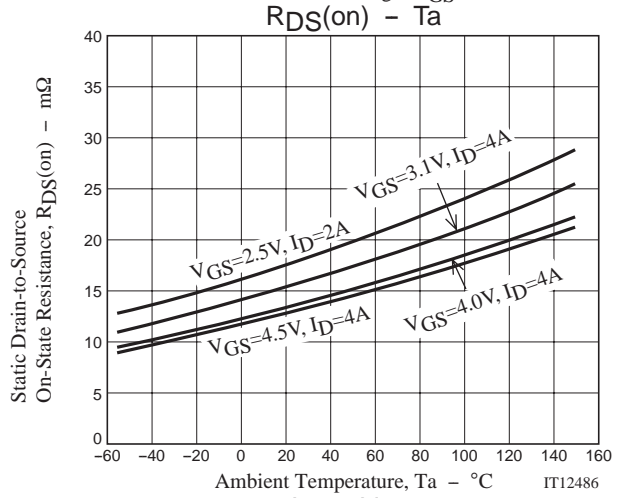
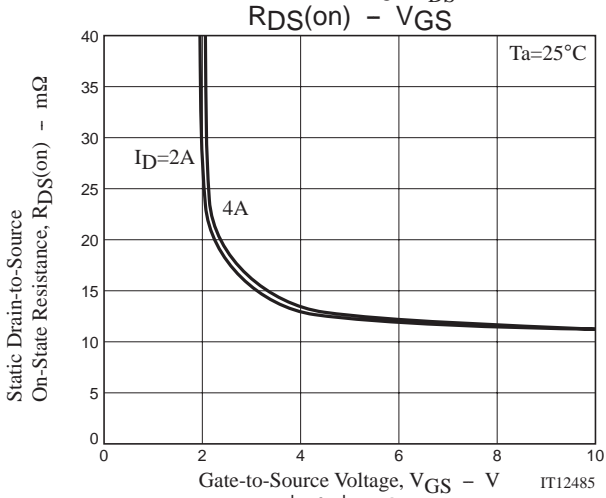
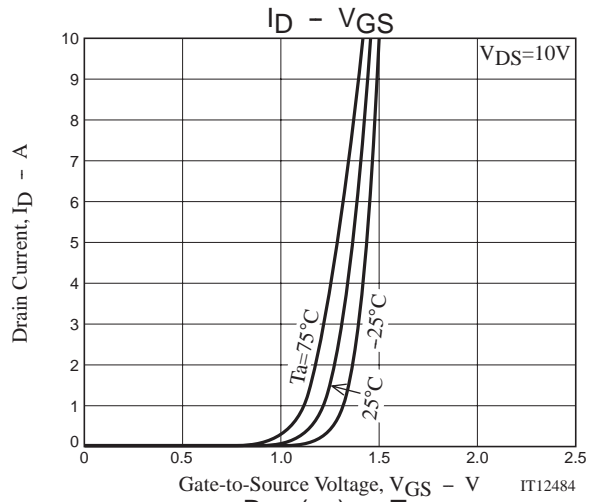
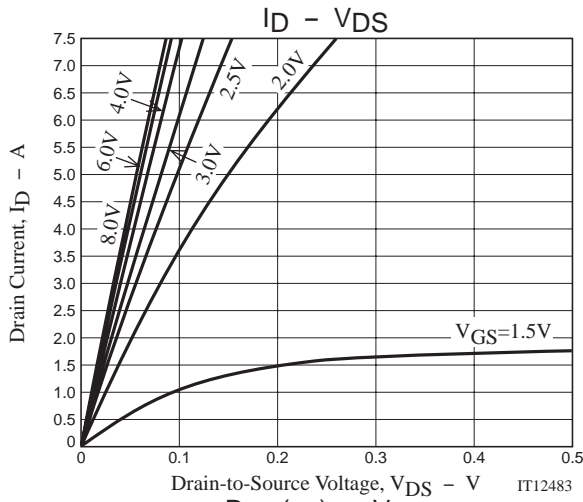


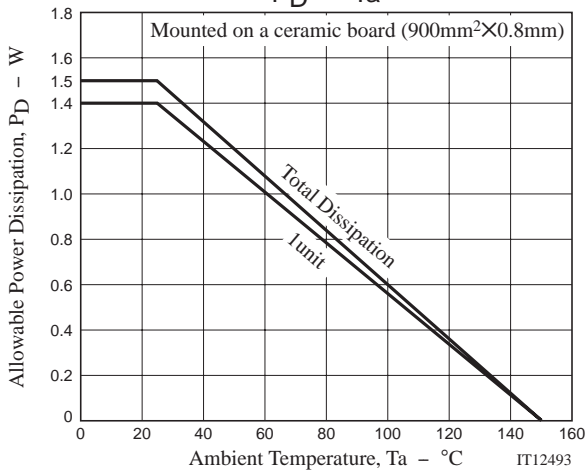
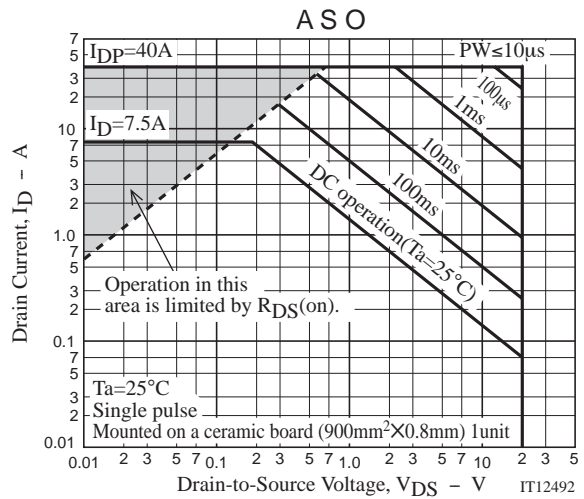
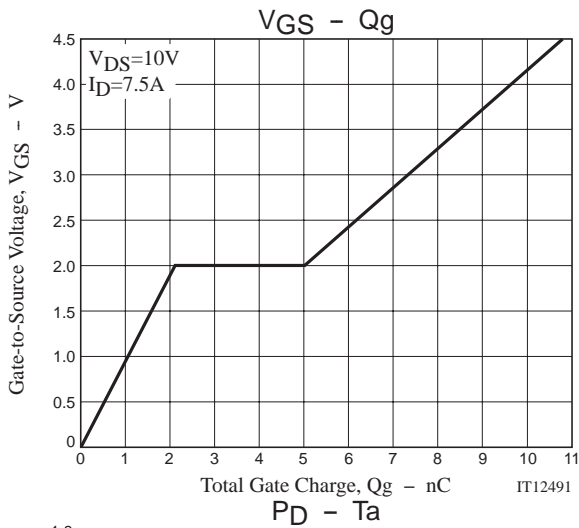
Electrical Connection



Switching Time Test Circuit







Note on usage : Since the ECH8649 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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