



N-Channel Silicon MOSFET

ECH8616 — General-Purpose Switching Device Applications

Features

- Ultrahigh-speed switching.
- 4V drive.
- Composite type, facilitating high-density mounting.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V _{DSS}		60	V
Gate-to-Source Voltage	V _{GSS}		±20	V
Drain Current (DC)	I _D		3	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	20	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (900mm ² ×0.8mm) 1unit	1.3	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} =0	60			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _D =60V, V _{GS} =0			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±16V, V _{DS} =0			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =10V, I _D =1mA	1.2		2.6	V
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =1.5A	2.2	3.8		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =1.5A, V _{GS} =10V		70	93	mΩ
	R _{DS(on)2}	I _D =0.5A, V _{GS} =4V		92	133	mΩ
Input Capacitance	C _{iss}	V _{DS} =20V, f=1MHz		560		pF
Output Capacitance	C _{oss}	V _{DS} =20V, f=1MHz		60		pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} =20V, f=1MHz		41		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit.		11		ns
Rise Time	t _r	See specified Test Circuit.		11		ns
Turn-OFF Delay Time	t _{d(off)}	See specified Test Circuit.		61		ns
Fall Time	t _f	See specified Test Circuit.		32		ns

Marking : FJ

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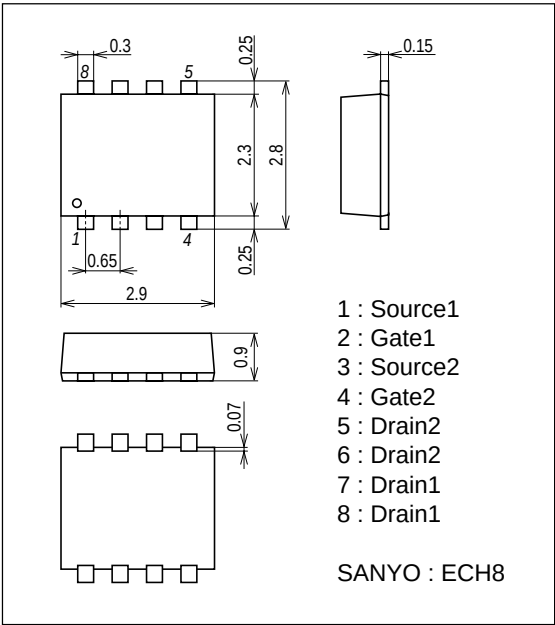
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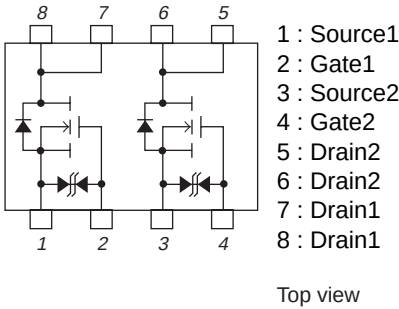
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	V _{DS} =30V, V _{GS} =10V, I _D =3A		12.8		nC
Gate-to-Source Charge	Qgs	V _{DS} =30V, V _{GS} =10V, I _D =3A		2.1		nC
Gate-to-Drain "Miller" Charge	Qgd	V _{DS} =30V, V _{GS} =10V, I _D =3A		2.7		nC
Diode Forward Voltage	V _{SD}	I _S =3A, V _{GS} =0		0.81	1.2	V

Package Dimensions

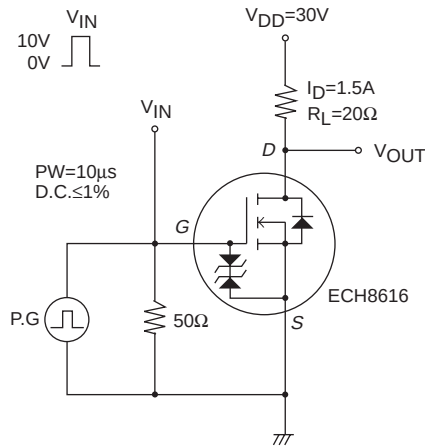
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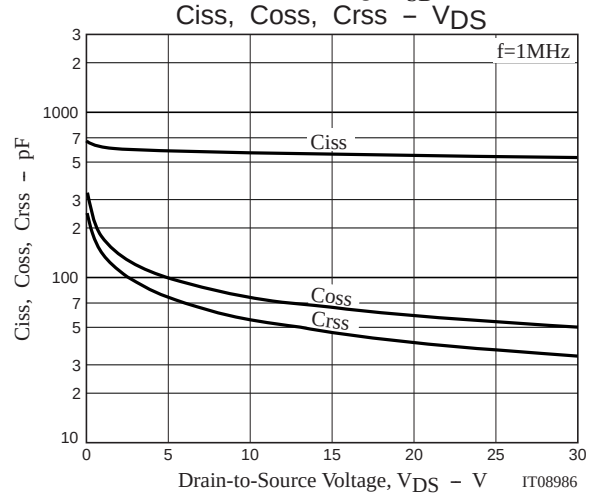
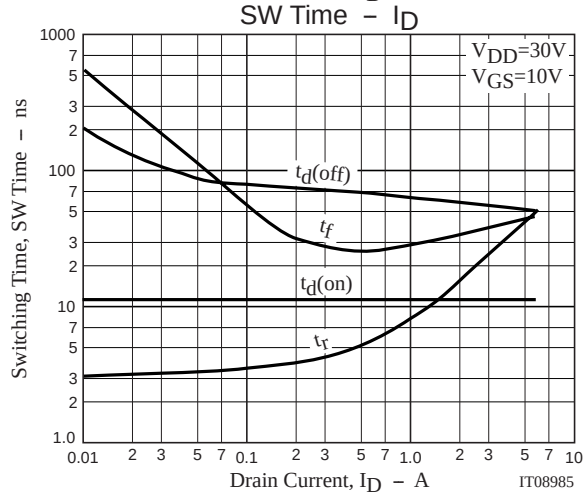
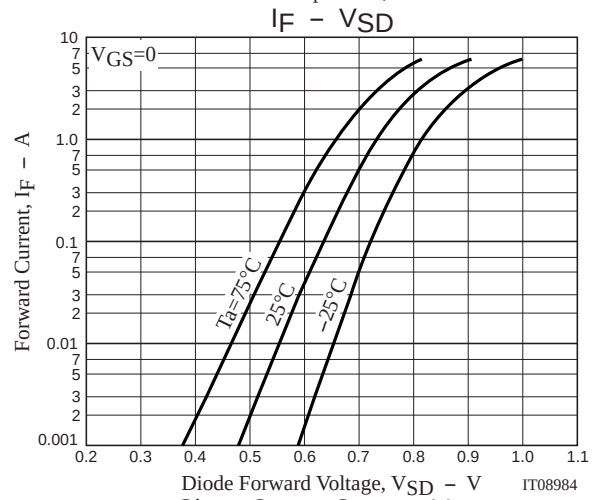
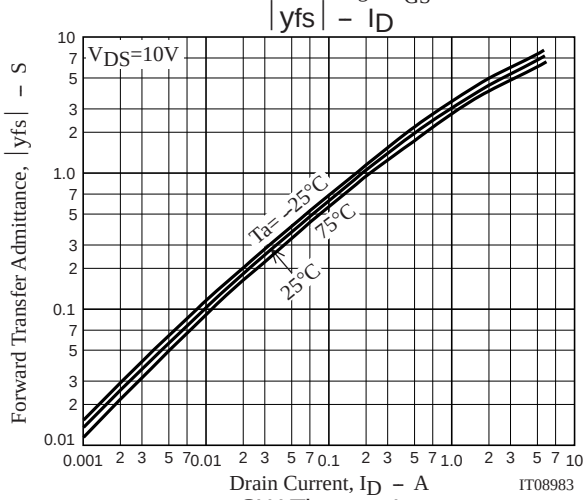
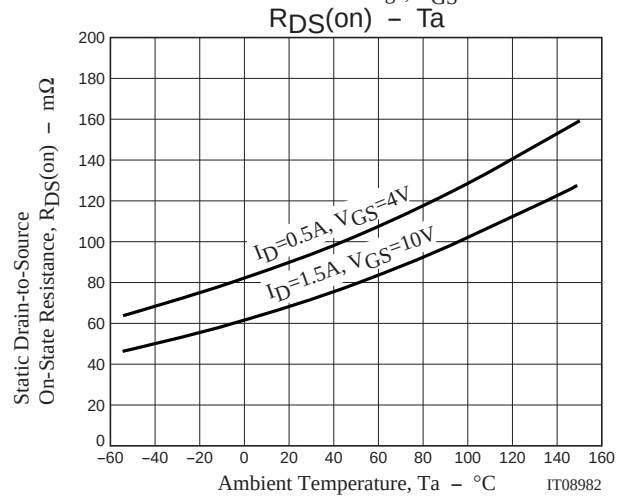
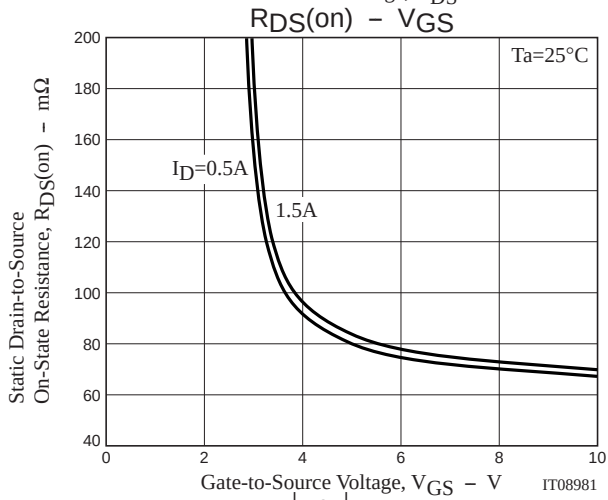
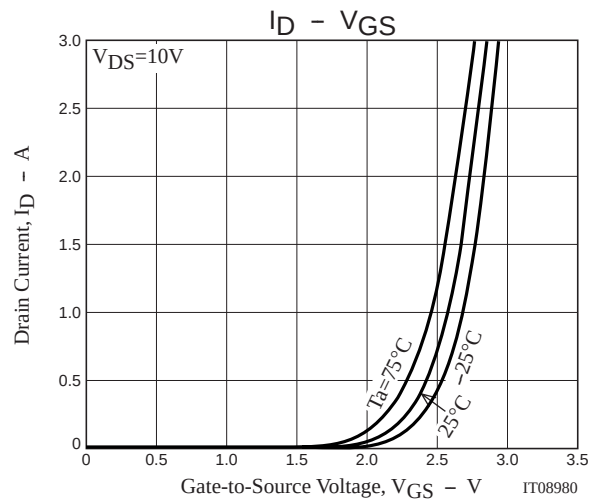
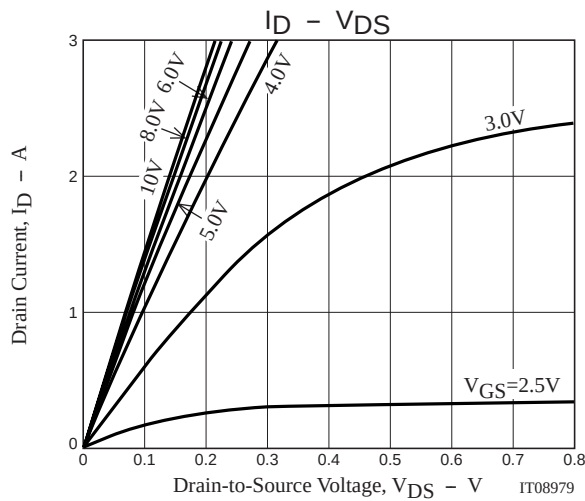


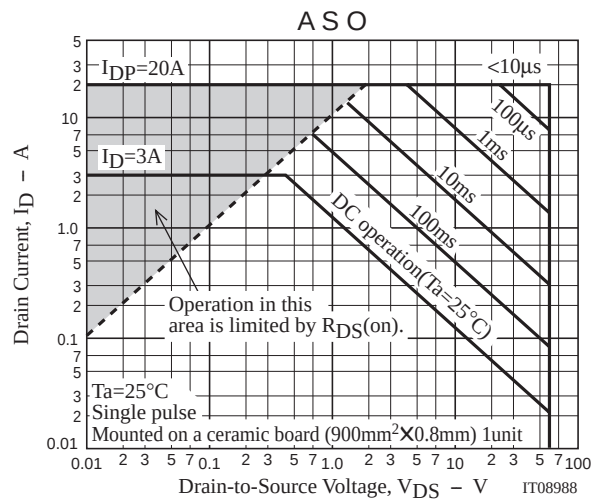
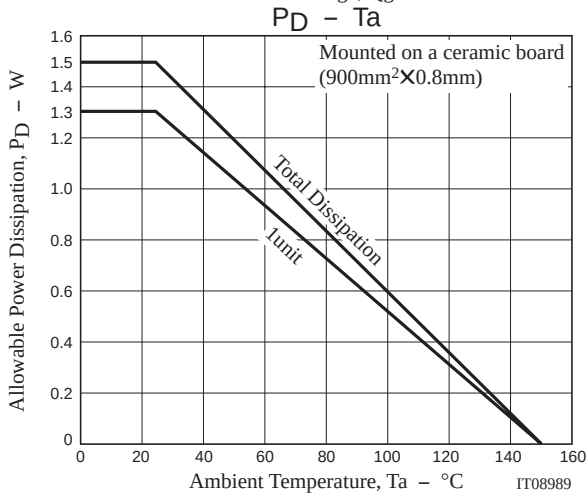
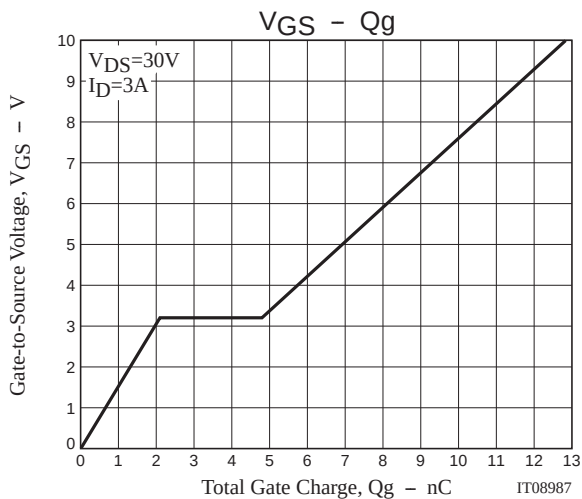
Electrical Connection



Switching Time Test Circuit







Note on usage : Since the ECH8616 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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