



ECH8613

P-Channel Silicon MOSFET

High-Speed Switching Applications

Features

- Low ON-resistance.
- High-speed switching.
- 2.5V drive.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V _{DSS}		-12	V
Gate-to-Source Voltage	V _{GSS}		±10	V
Drain Current (DC)	I _D		-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	1.3	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	-12			V
Zero-Gate Voltage Drain Current	I _{DSS1}	V _{DS} =-4V, V _{GS} =0			-1	μA
	I _{DSS2}	V _{DS} =-12V, V _{GS} =0			-10	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =-6V, I _D =-1mA	-0.4		-1.4	V
Forward Transfer Admittance	y _{fs}	V _{DS} =-6V, I _D =-2.5A	5.5	9.3		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =-2A, V _{GS} =-5V		26	33	mΩ
	R _{DS(on)2}	I _D =-1A, V _{GS} =-4.5V		28	37	mΩ
	R _{DS(on)3}	I _D =-0.5A, V _{GS} =-2.5V		43	60	mΩ
Input Capacitance	C _{iss}	V _{DS} =-6V, f=1MHz		1165		pF
Output Capacitance	C _{oss}	V _{DS} =-6V, f=1MHz		320		pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} =-6V, f=1MHz		265		pF

Marking : FF

Continued on next page.

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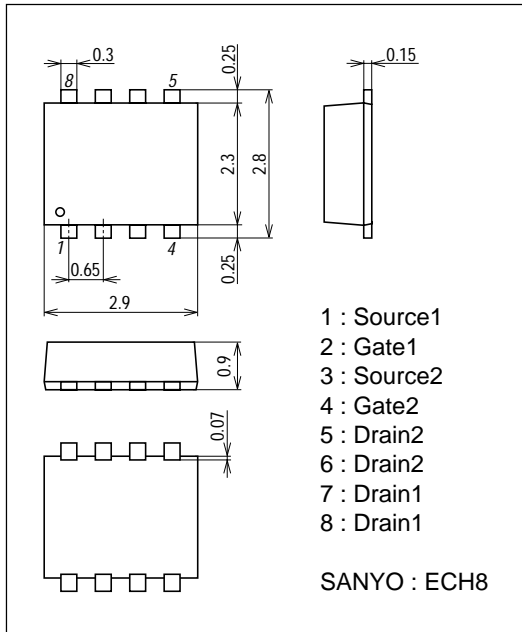
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		12		ns
Rise Time	t_r	See specified Test Circuit.		340		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		100		ns
Fall Time	t_f	See specified Test Circuit.		130		ns
Total Gate Charge	Qg	$V_{DS}=-6V, V_{GS}=-5V, I_D=-5A$		9.5		nC
Gate-to-Source Charge	Qgs	$V_{DS}=-6V, V_{GS}=-5V, I_D=-5A$		2.1		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=-6V, V_{GS}=-5V, I_D=-5A$		1.4		nC
Diode Forward Voltage	V_{SD}	$I_S=-5A, V_{GS}=0$		0.83	-1.5	V

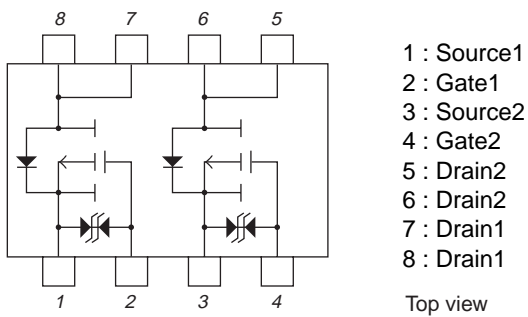
Package Dimensions

unit : mm

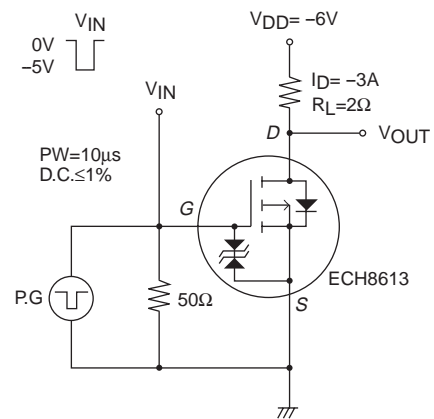
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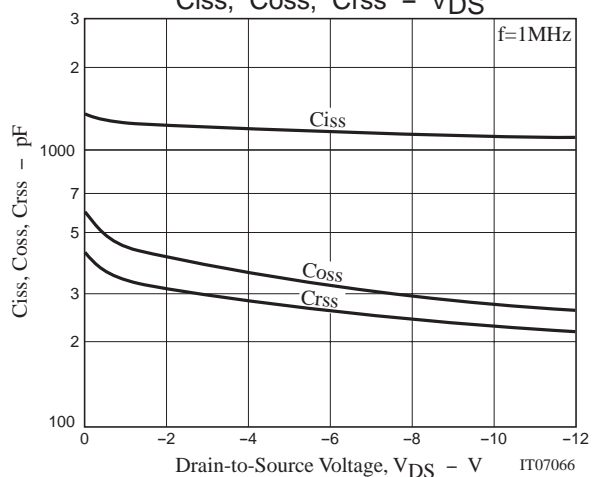
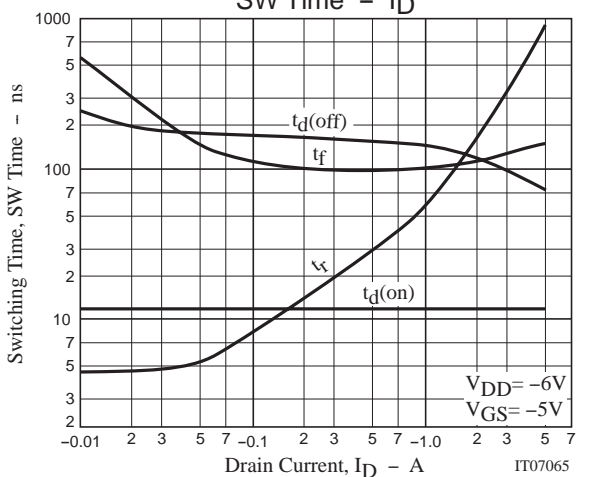
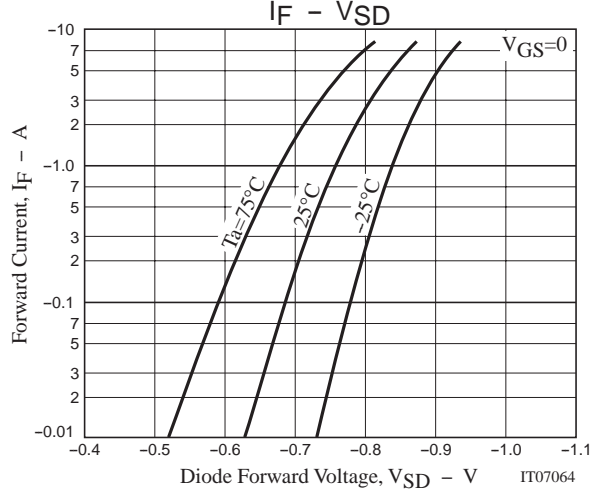
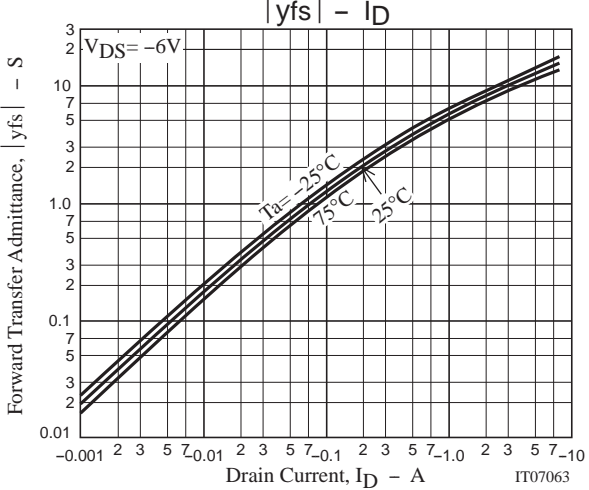
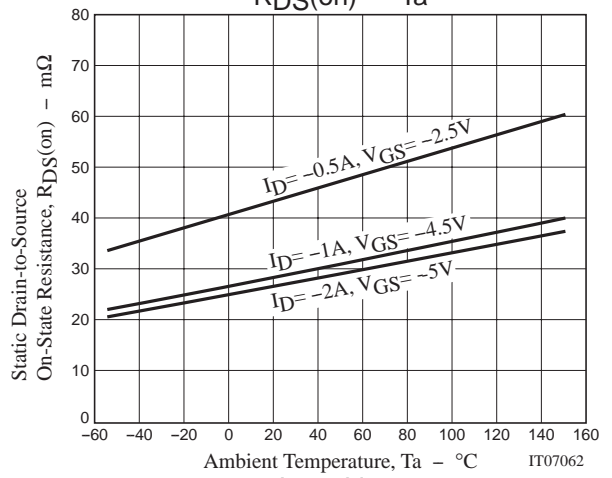
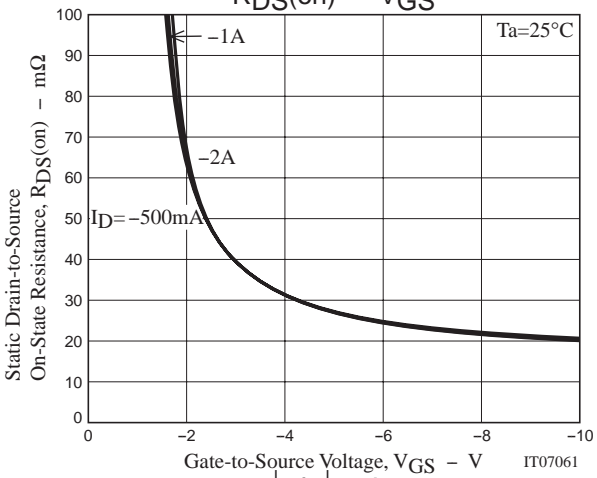
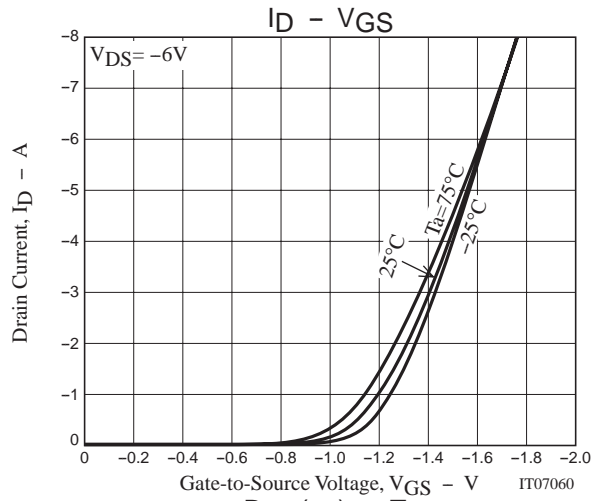
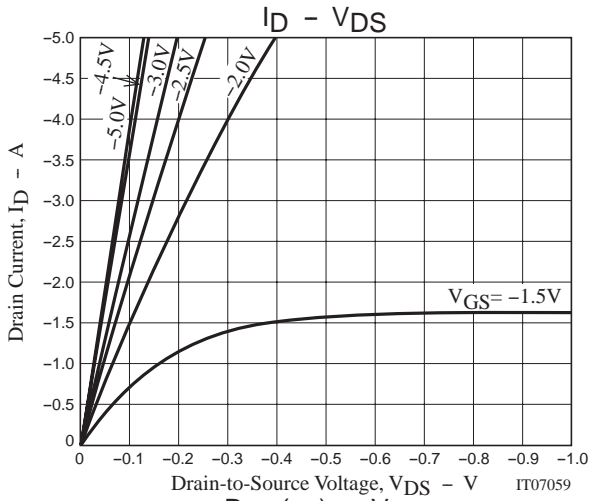


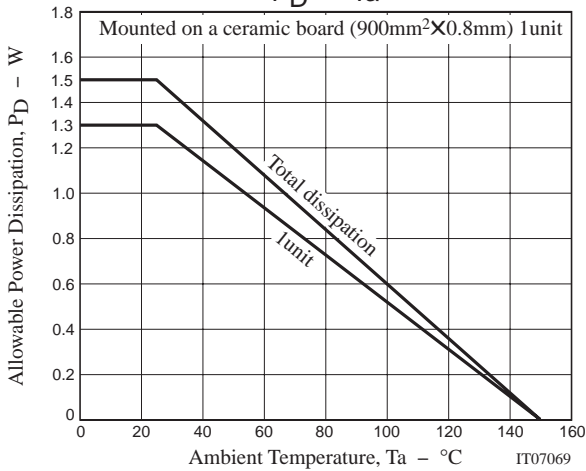
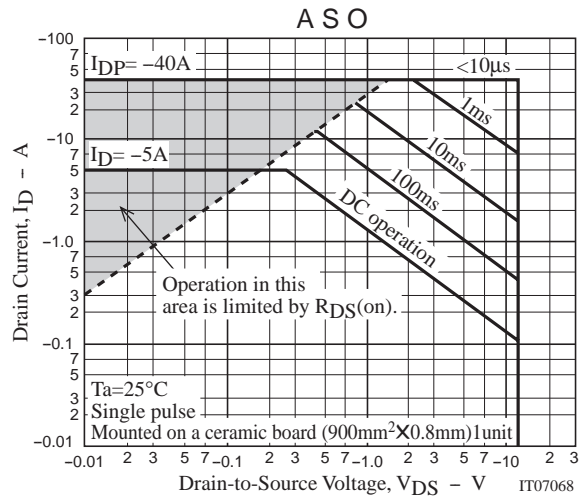
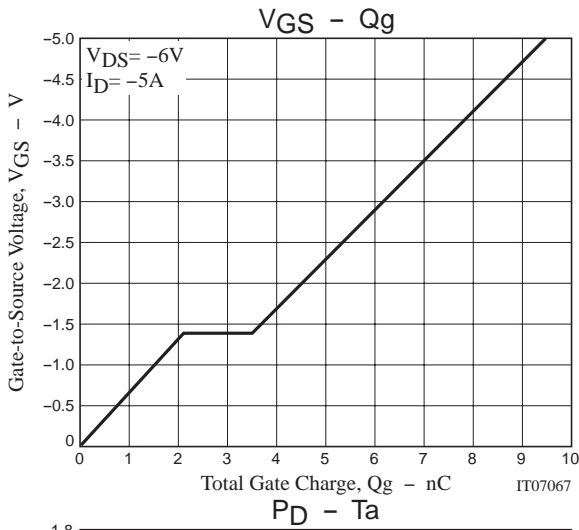
Electrical Connection



Switching Time Test Circuit







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