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[SANYO Semiconductor \(U.S.A\) Corporation](#)
[ECH8304-TL-E](#)

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Ordering number : ENN8255



SANYO Semiconductors

DATA SHEET

P-Channel Silicon MOSFET

ECH8304 — General-Purpose Switching Device Applications

Features

- Best suited for load switching.
- Low ON-resistance.
- 1.8V 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}		±9	V
Drain Current (DC)	I _D		-9.5	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)	1.6	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 _{DSS}	V _{DS} =-12V, V _{GS} =0			-10	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±7.2V, V _{DS} =0			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =-6V, I _D =-1mA	-0.3		-1.0	V
Forward Transfer Admittance	y _{fs}	V _{DS} =-6V, I _D =-4.5A	12	20		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =-4.5A, V _{GS} =-4.5V		12	16	mΩ
	R _{DS(on)2}	I _D =-2A, V _{GS} =-2.5V		18	26	mΩ
	R _{DS(on)3}	I _D =-1A, V _{GS} =-1.8V		27	39	mΩ
Input Capacitance	C _{iss}	V _{DS} =-6V, f=1MHz		3180		pF
Output Capacitance	C _{oss}	V _{DS} =-6V, f=1MHz		970		pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} =-6V, f=1MHz		920		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit.		26		ns
Rise Time	t _r	See specified Test Circuit.		234		ns
Turn-OFF Delay Time	t _{d(off)}	See specified Test Circuit.		280		ns
Fall Time	t _f	See specified Test Circuit.		295		ns

Marking : JF

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ECH8304

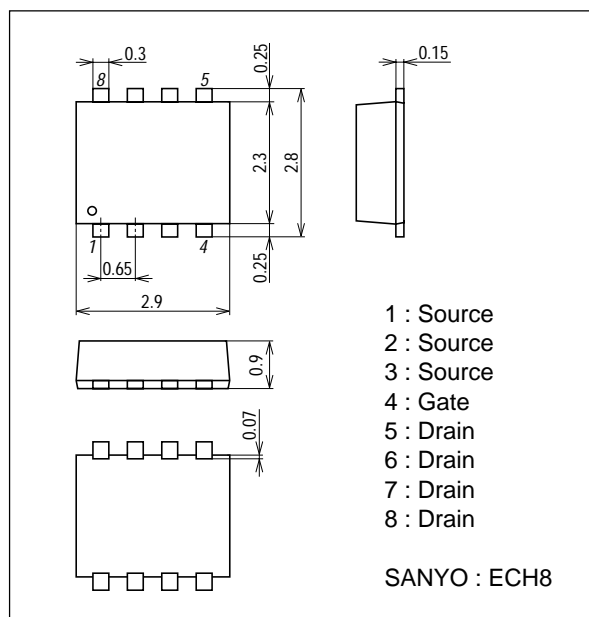
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-9.5A$		33		nC
Gate-to-Source Charge	Qgs	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-9.5A$		5.3		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-9.5A$		9.4		nC
Diode Forward Voltage	V_{SD}	$I_S=-9.5A, V_{GS}=0$		-0.82	-1.2	V

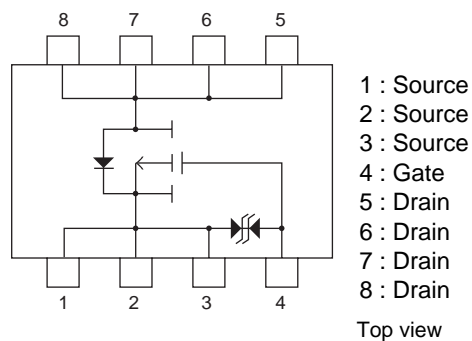
Package Dimensions

unit : mm

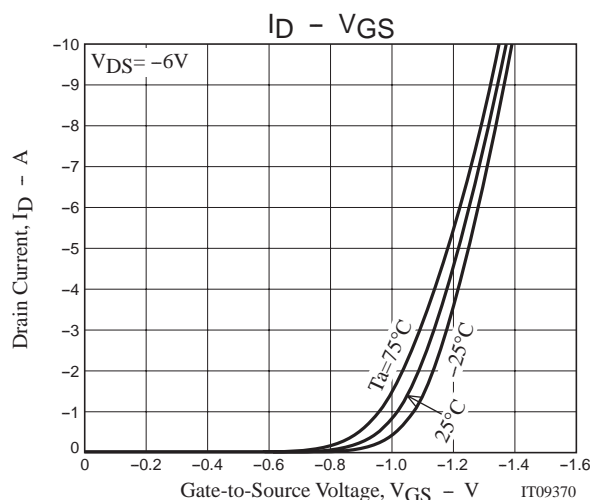
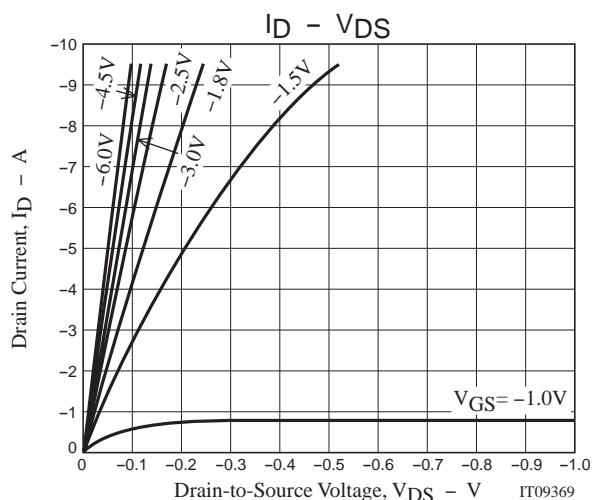
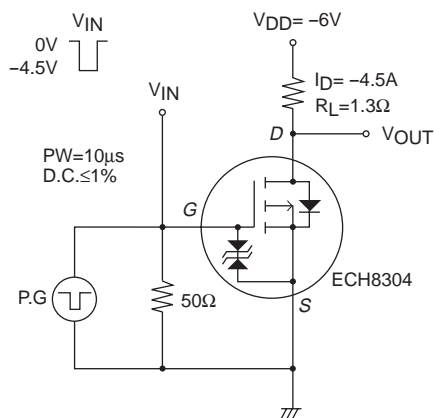
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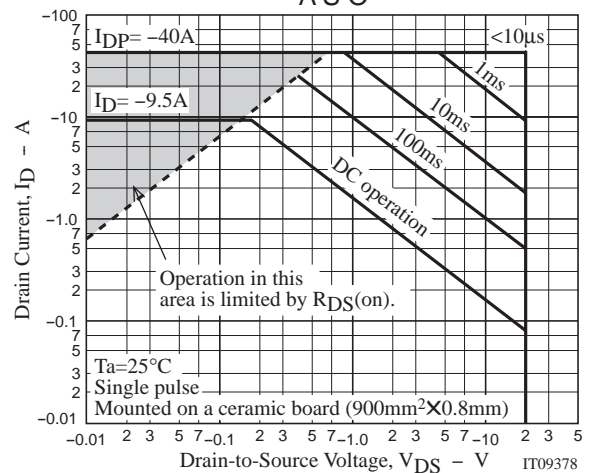
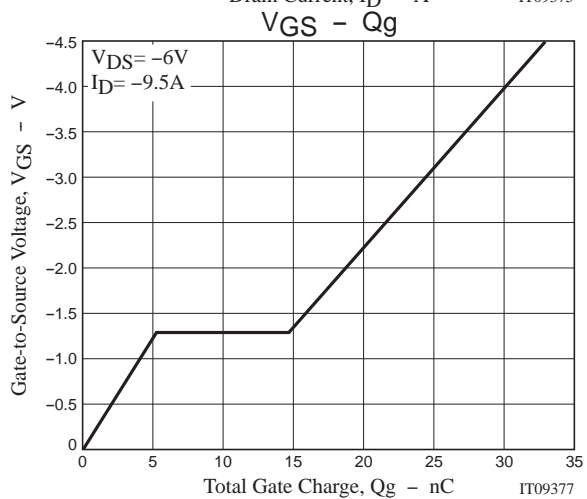
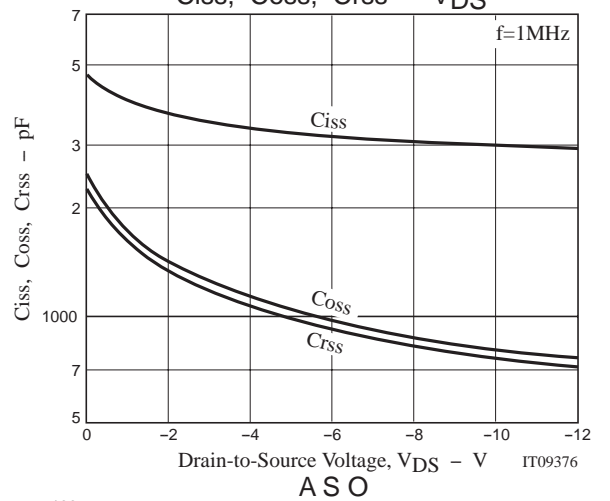
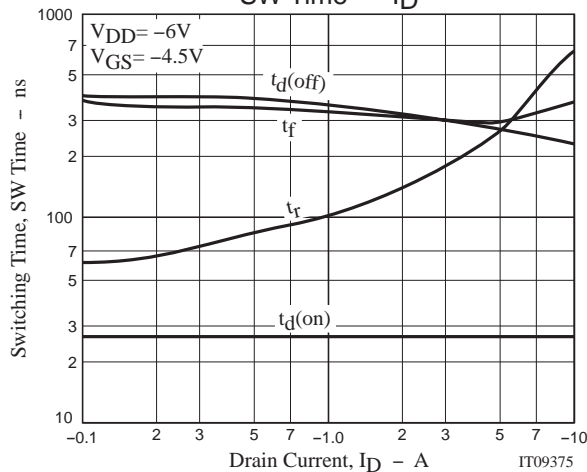
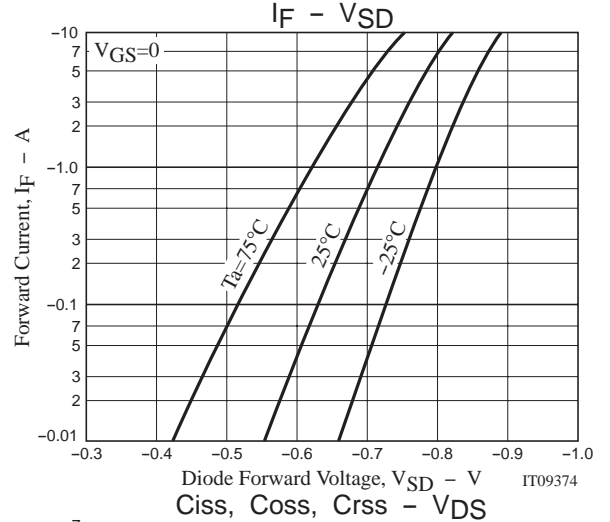
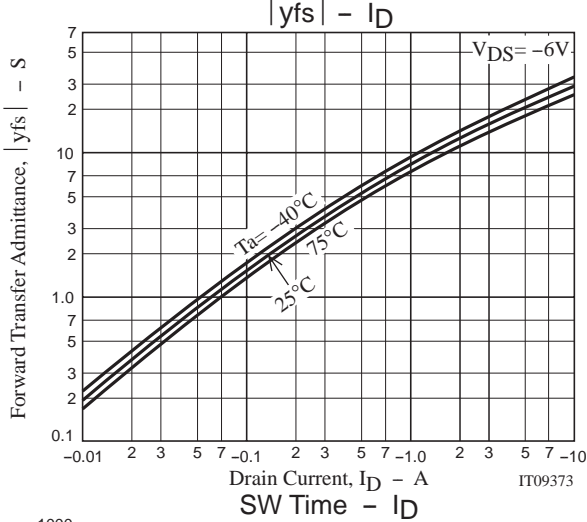
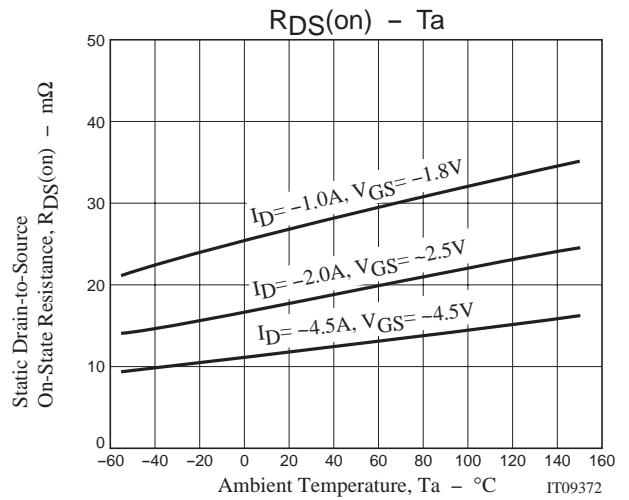
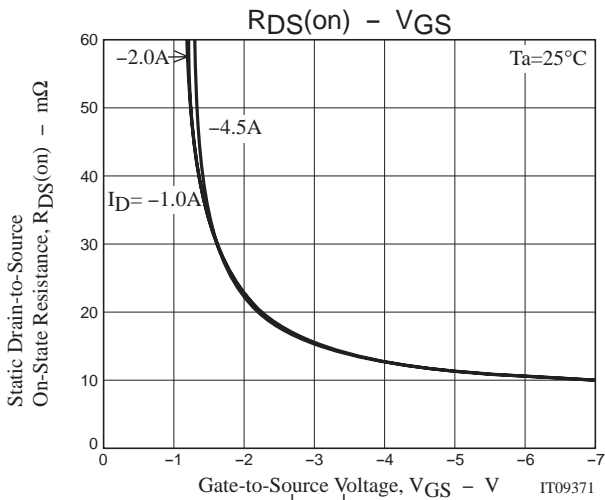
Electrical Connection



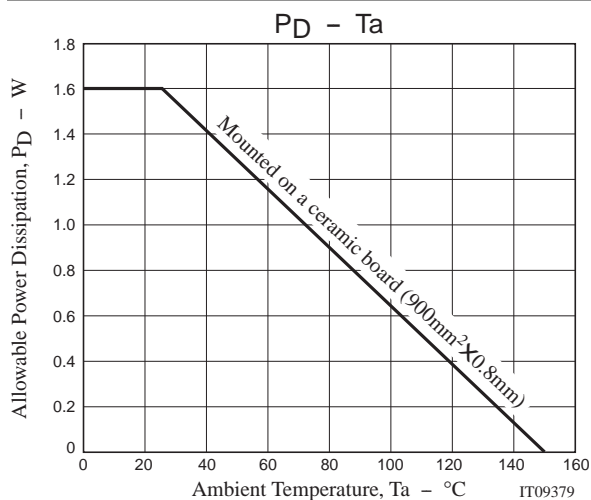
Switching Time Test Circuit



ECH8304



ECH8304



Note on usage : Since the ECH8304 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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