



SANYO Semiconductors

DATA SHEET

EC4304C — P-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- High-speed switching.
- 2.5V drive.
- High resistance to damage from ESD (typ 300V) [with a protection diode connected between the gate and source].

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(*1)	V _{GSS}		-10	V
Drain Current (DC)	I _D		-0.25	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	-1	A
Allowable Power Dissipation	P _D		0.15	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

(*1) : Note, when designing a circuit using this product, that it has a gate (oxide film) protection diode connected only between its gate and source.

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	-30			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} = -30V, V _{GS} =0			-1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} = -8V, V _{DS} =0			-1	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} = -10V, I _D = -100μA	-0.4		-1.4	V
Forward Transfer Admittance	y _{fs}	V _{DS} = -10V, I _D = -120mA	0.24	0.4		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D = -120mA, V _{GS} = -4V		1.5	1.9	Ω
	R _{DS(on)2}	I _D = -60mA, V _{GS} = -2.5V		2.0	2.8	Ω
	R _{DS(on)3}	I _D = -10mA, V _{GS} = -1.5V		4.0	8.0	Ω
Input Capacitance	C _{iss}	V _{DS} = -10V, f=1MHz		40		pF
Output Capacitance	C _{oss}	V _{DS} = -10V, f=1MHz		8		pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} = -10V, f=1MHz		4.5		pF

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SANYO Electric Co., Ltd. Semiconductor Company

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

EC4304C

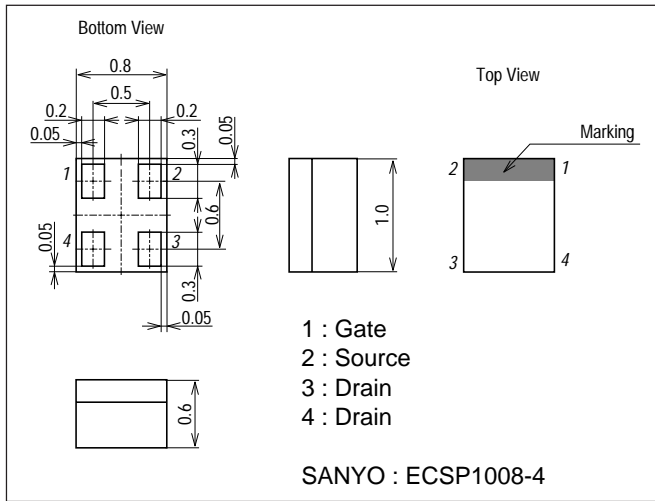
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		9.5		ns
Rise Time	t_r	See specified Test Circuit.		5		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		15		ns
Fall Time	t_f	See specified Test Circuit.		13		ns
Total Gate Charge	Q_g	$V_{DS} = -10V, V_{GS} = -4V, I_D = -250mA$		0.8		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS} = -10V, V_{GS} = -4V, I_D = -250mA$		0.3		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS} = -10V, V_{GS} = -4V, I_D = -250mA$		0.2		nC
Diode Forward Voltage	V_{SD}	$I_S = -250mA, V_{GS} = 0$		-0.9	-1.2	V

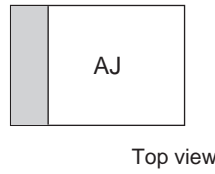
Package Dimensions

unit : mm

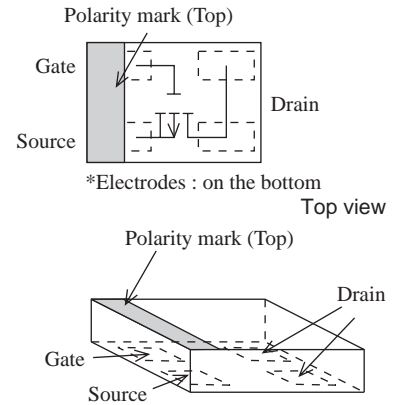
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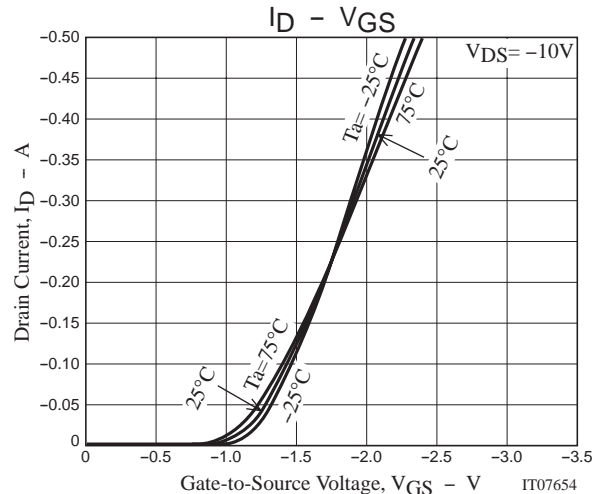
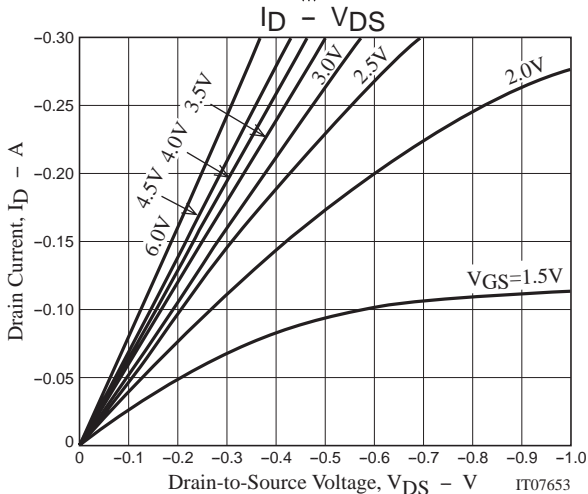
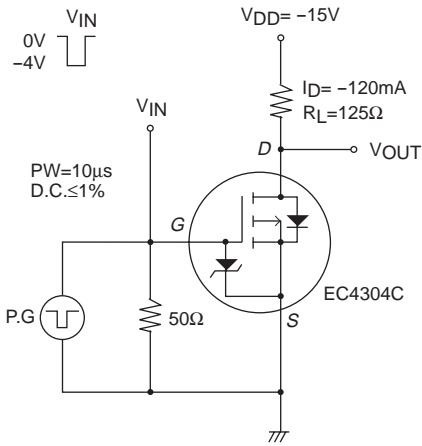
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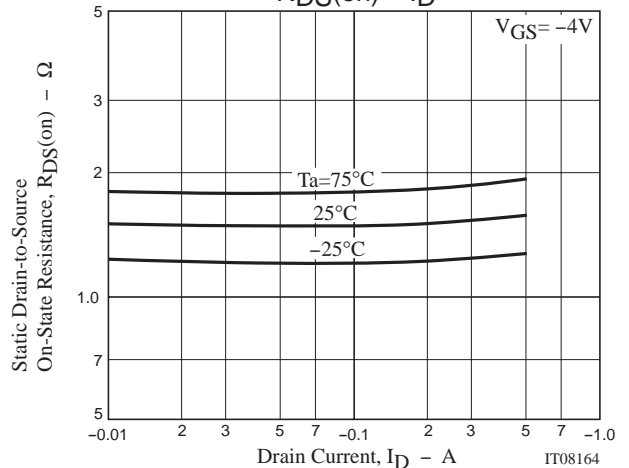
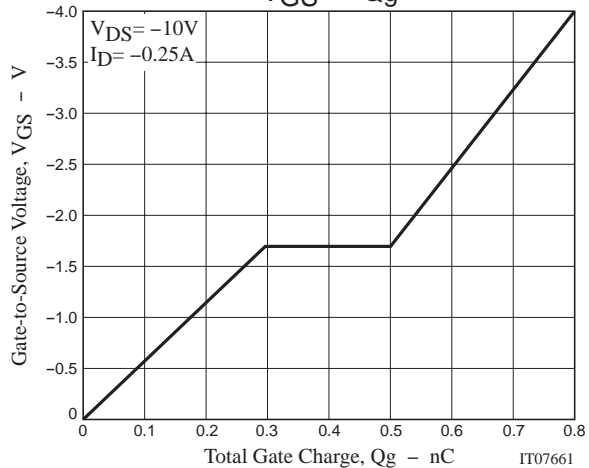
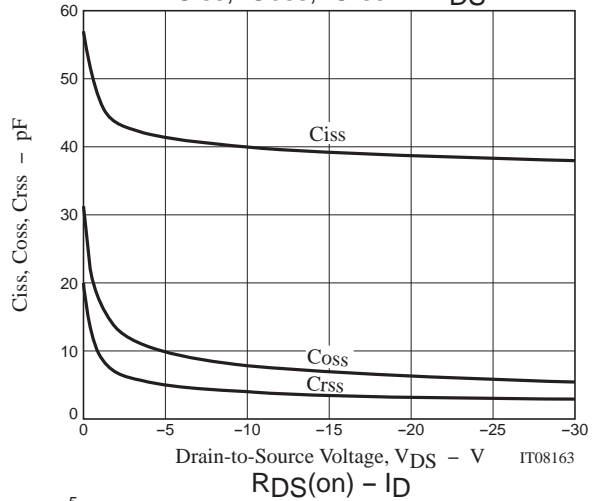
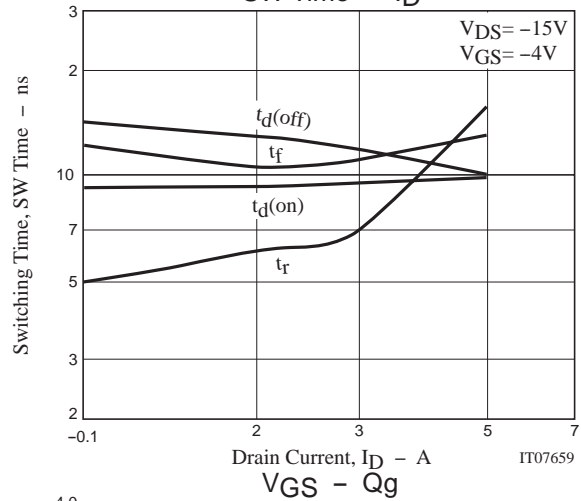
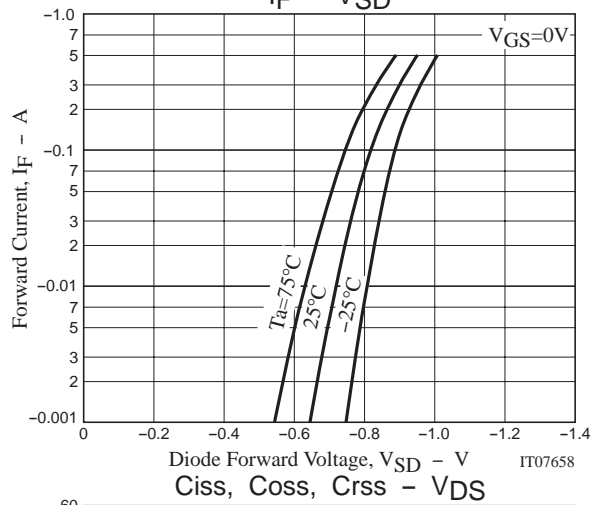
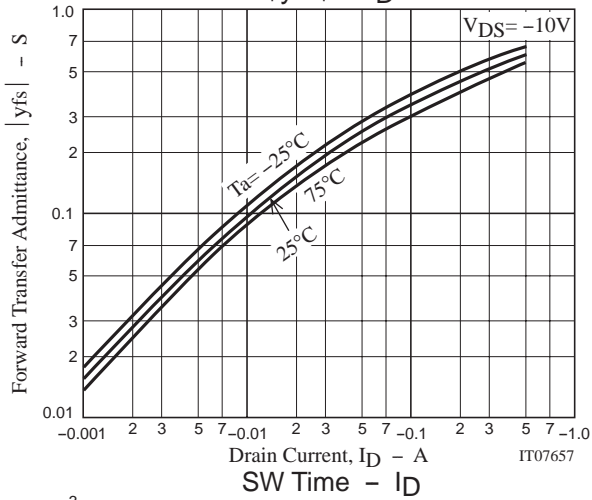
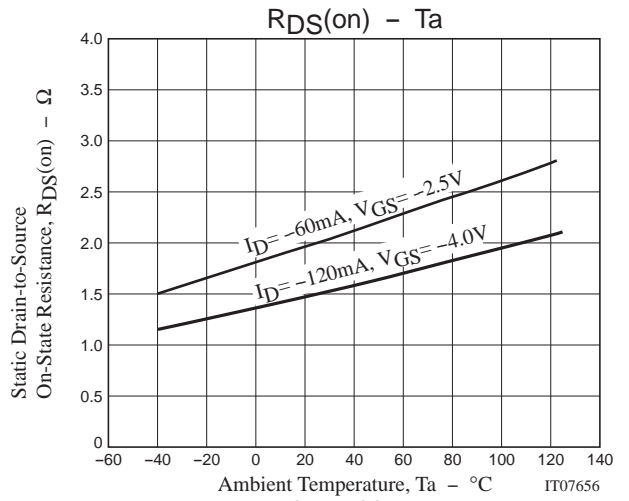
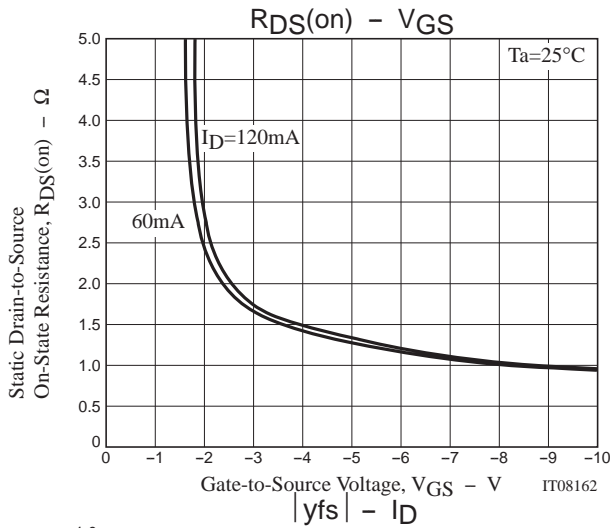
Electrical Connection



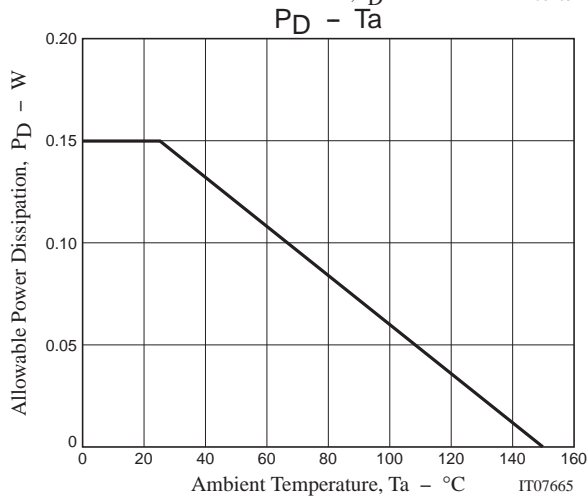
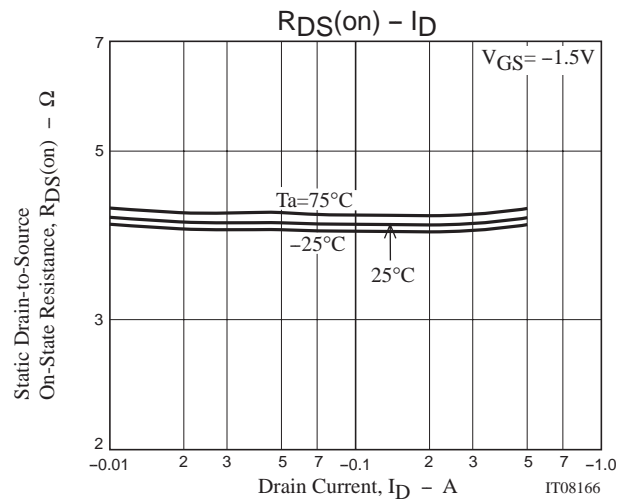
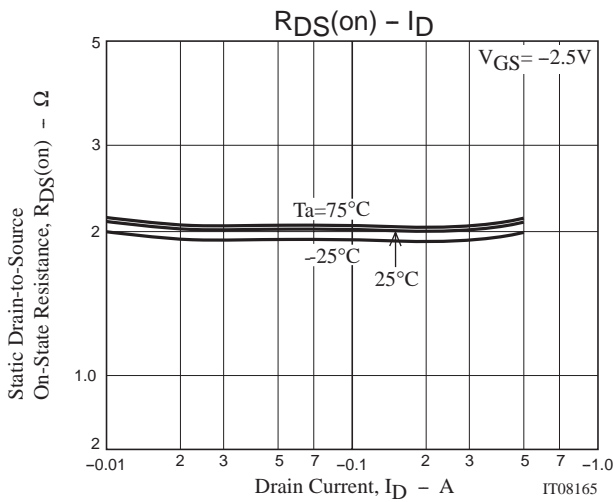
Switching Time Test Circuit



EC4304C



EC4304C



Note on usage : Since the EC4304C is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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