



Small Signal Switch and Interface Applications

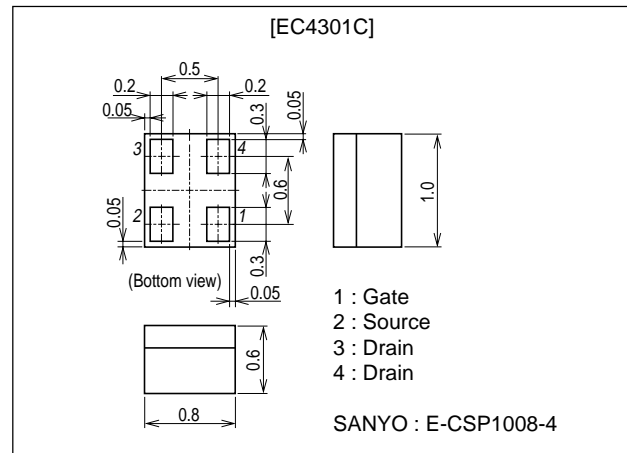
Features

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

Package Dimensions

unit : mm

2197



Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		-30	V
Gate-to-Source Voltage	V_{GS}		± 10	V
Drain Current (DC)	I_D		-0.1	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	-0.4	A
Allowable Power Dissipation	P_D		0.15	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	$V_{(BR)DSS}$	$I_D = -1mA$, $V_{GS} = 0$	-30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -30V$, $V_{GS} = 0$			-10	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 8V$, $V_{DS} = 0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10V$, $I_D = -100\mu A$	-0.4		-1.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10V$, $I_D = -50mA$	80	110		mS
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -50mA$, $V_{GS} = -4V$		8	10.4	Ω
	$R_{DS(on)2}$	$I_D = -30mA$, $V_{GS} = -2.5V$		11	15.4	Ω
	$R_{DS(on)3}$	$I_D = -1mA$, $V_{GS} = -1.5V$		27	54	Ω

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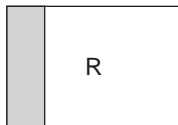
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EC4301C

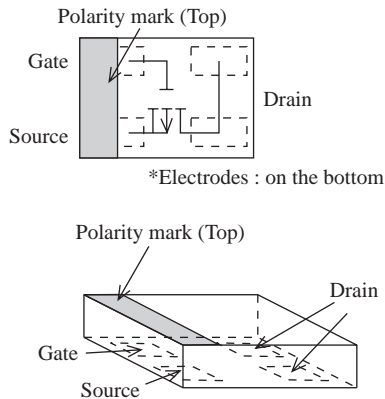
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS}=-10V, f=1MHz$		7.5		pF
Output Capacitance	Coss	$V_{DS}=-10V, f=1MHz$		5.7		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=-10V, f=1MHz$		1.8		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		24		ns
Rise Time	t_r	See specified Test Circuit.		55		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		120		ns
Fall Time	t_f	See specified Test Circuit.		130		ns
Total Gate Charge	Qg	$V_{DS}=-10V, V_{GS}=-10V, I_D=-100mA$		1.43		nC
Gate-to-Source Charge	Qgs	$V_{DS}=-10V, V_{GS}=-10V, I_D=-100mA$		0.18		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=-10V, V_{GS}=-10V, I_D=-100mA$		0.25		nC
Diode Forward Voltage	V_{SD}	$I_S=-100mA, V_{GS}=0$		-0.91	-1.2	V

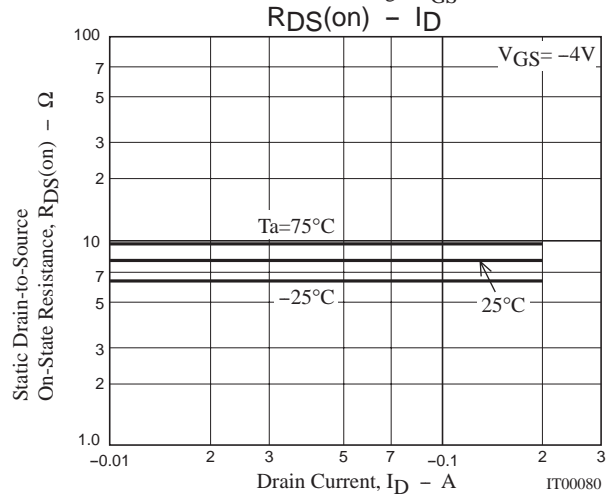
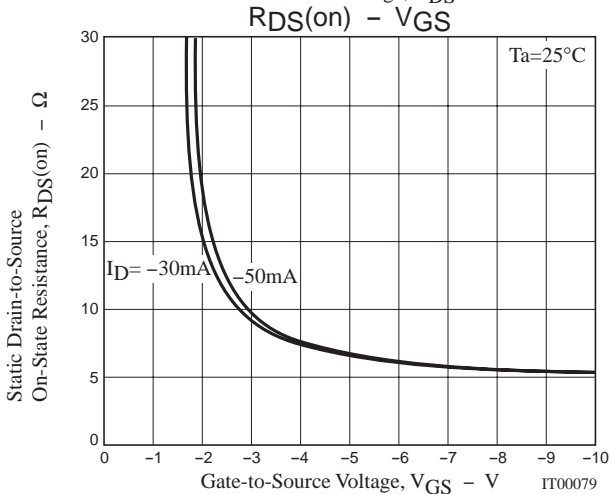
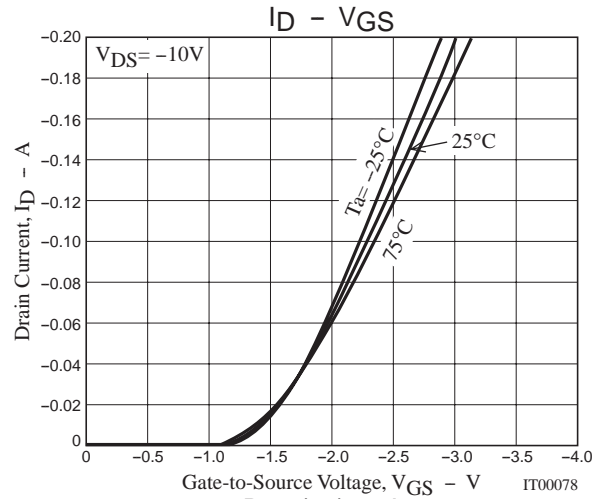
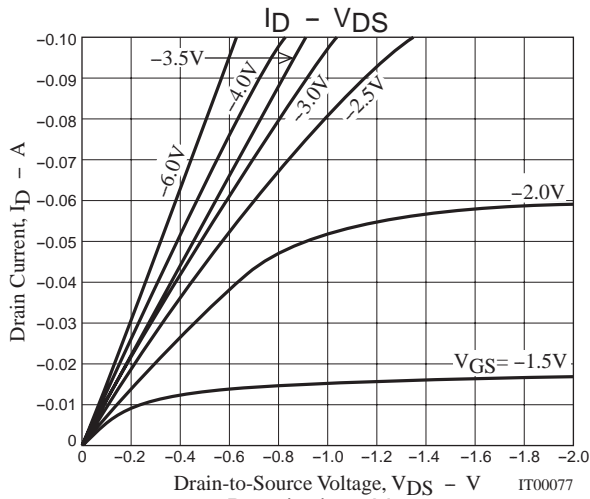
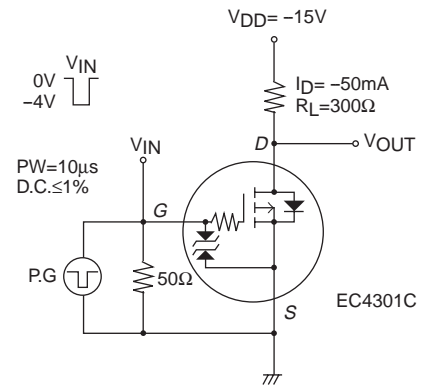
Type No. Indication (Top view)



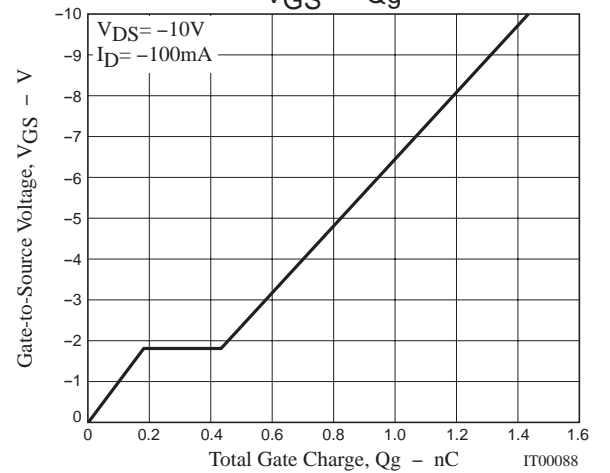
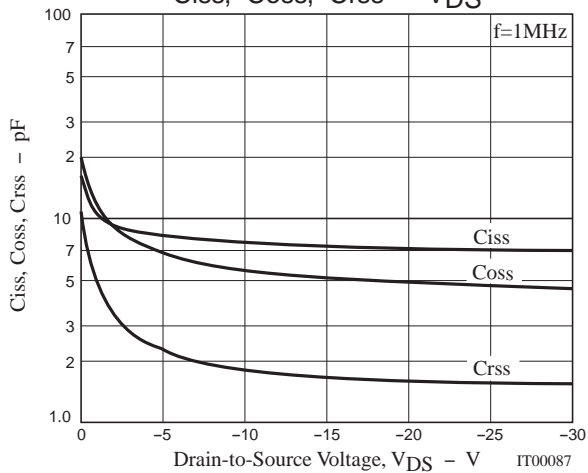
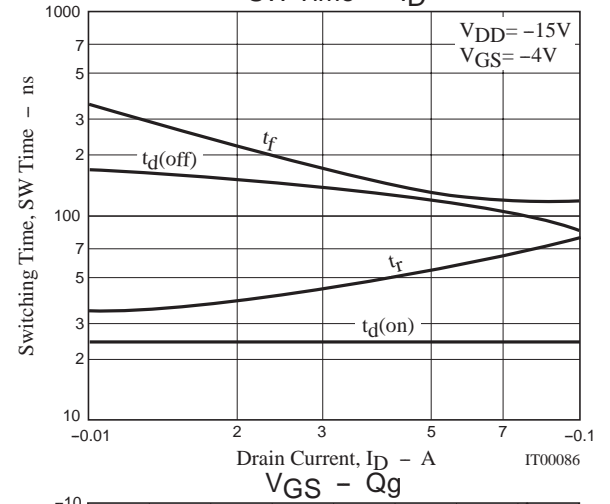
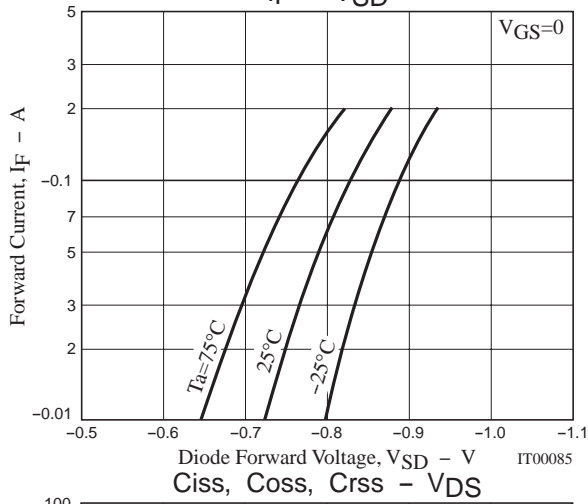
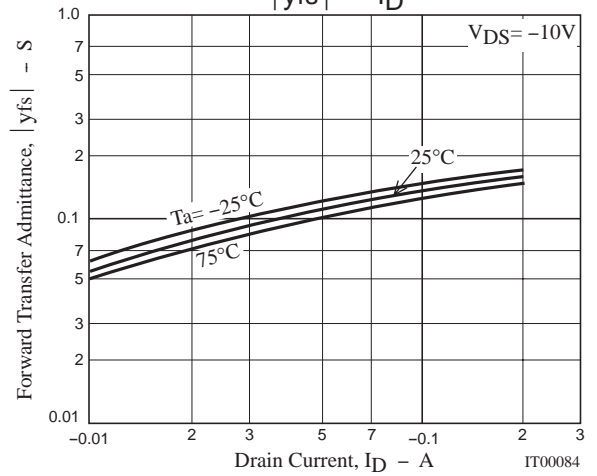
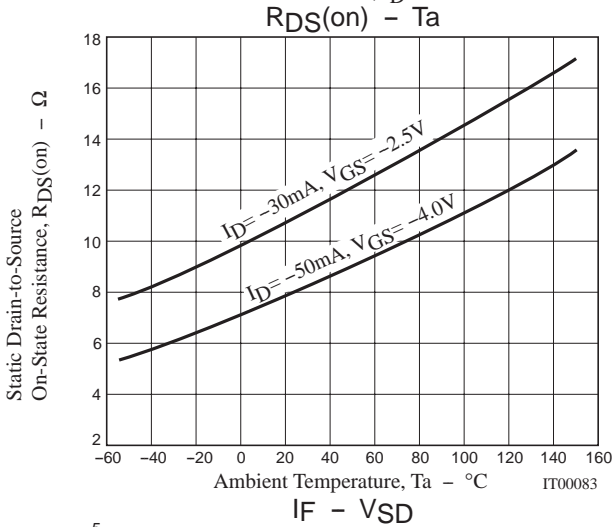
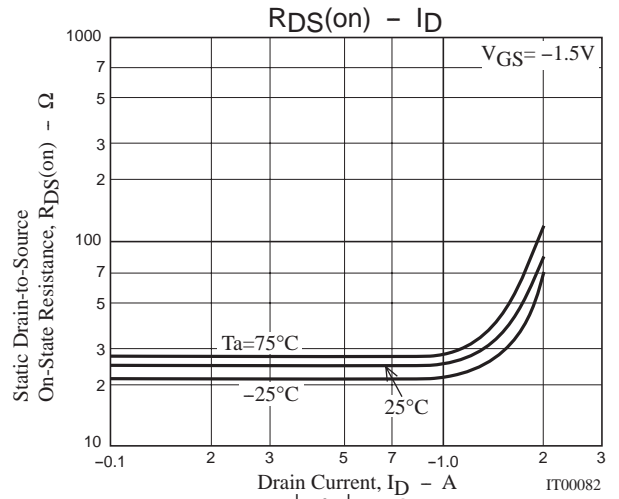
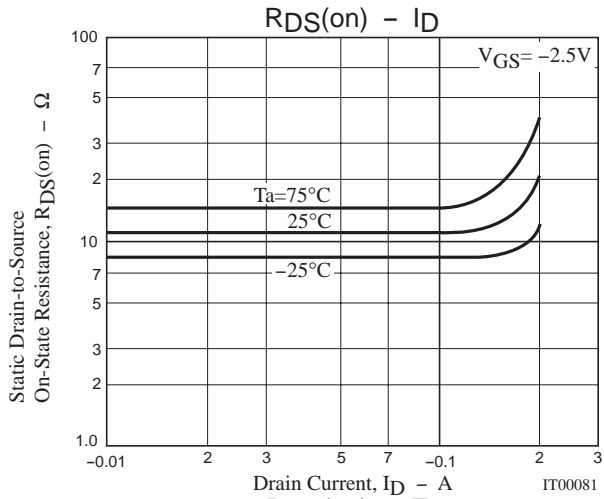
Electrical Connection (Top view)

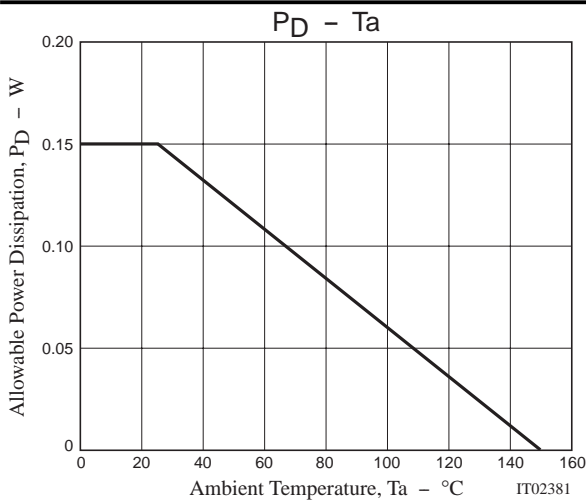


Switching Time Test Circuit



EC4301C





Note on usage : Since the EC4301C is designed for high-speed switching applications, please avoid using this device in the vicinity of highly charged objects.

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