



EC4402C — N-Channel Silicon MOSFET

Small Signal Switch and Interface Applications

Features

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

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		50	V
Gate-to-Source Voltage	V_{GS}		± 10	V
Drain Current (DC)	I_D		0.1	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	0.4	A
Allowable Power Dissipation	P_D		0.15	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$, $V_{GS}=0\text{V}$	50			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=50\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8\text{V}$, $V_{DS}=0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$, $I_D=100\mu\text{A}$	0.4		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$, $I_D=50\text{mA}$	0.13	0.18		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=50\text{mA}$, $V_{GS}=4\text{V}$		6	7.8	Ω
	$R_{DS(on)2}$	$I_D=30\text{mA}$, $V_{GS}=2.5\text{V}$		7.1	9.9	Ω
	$R_{DS(on)3}$	$I_D=10\text{mA}$, $V_{GS}=1.5\text{V}$		10	20	Ω
Input Capacitance	C_{iss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		6.6		pF
Output Capacitance	C_{oss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		4.7		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		1.7		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		18		ns
Rise Time	t_r	See specified Test Circuit.		42		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		190		ns
Fall Time	t_f	See specified Test Circuit.		105		ns

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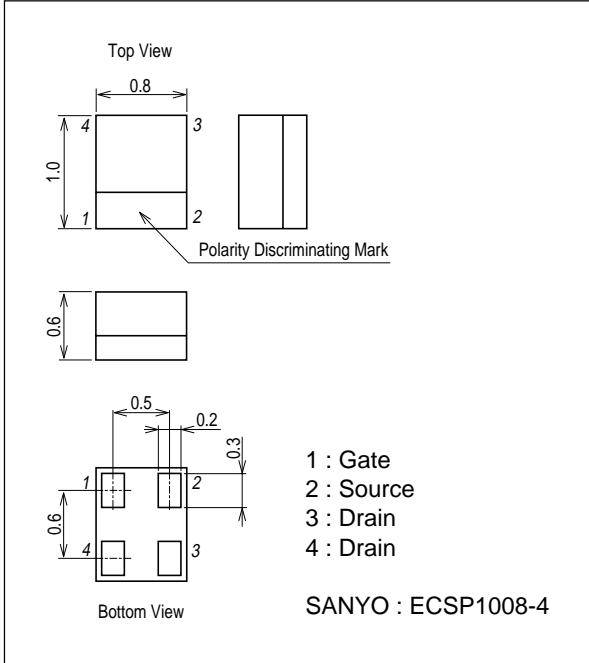
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	V _{DS} =10V, V _{GS} =10V, I _D =100mA		1.57		nC
Gate-to-Source Charge	Qgs	V _{DS} =10V, V _{GS} =10V, I _D =100mA		0.20		nC
Gate-to-Drain "Miller" Charge	Qgd	V _{DS} =10V, V _{GS} =10V, I _D =100mA		0.32		nC
Diode Forward Voltage	V _{SD}	I _S =100mA, V _{GS} =0V		0.9	1.2	V

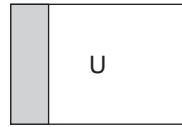
Package Dimensions

unit : mm

7036-001

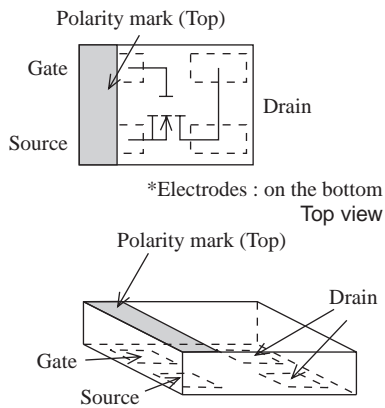


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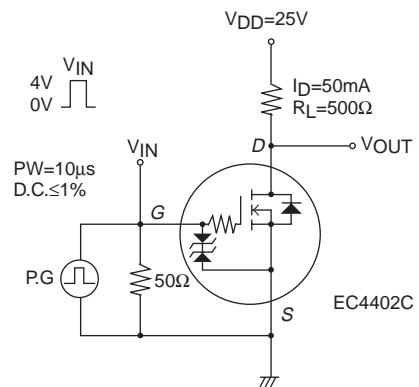


Top view

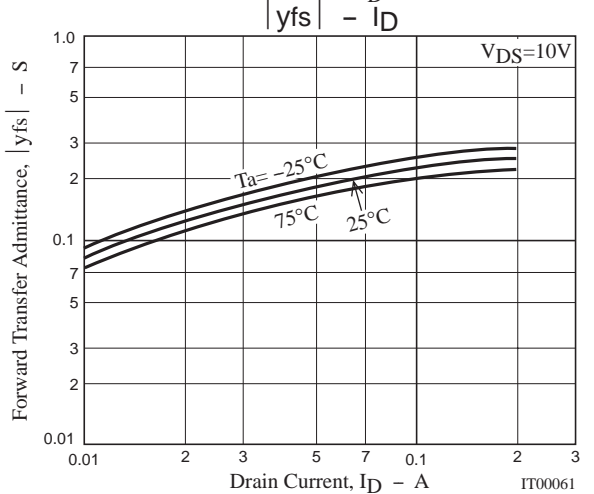
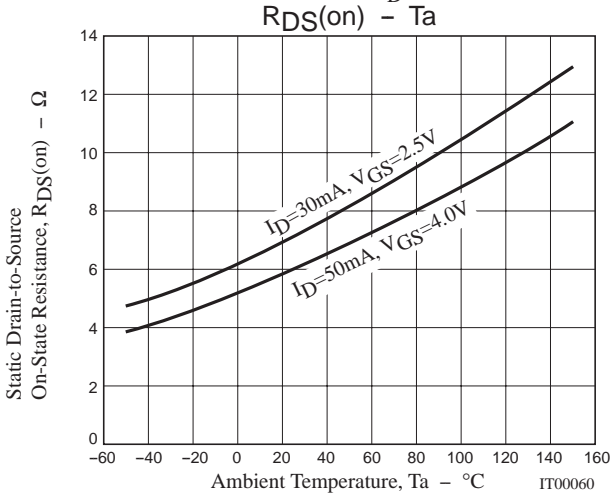
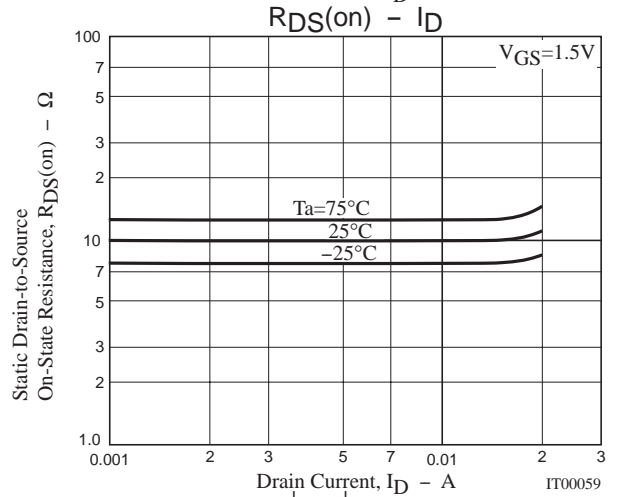
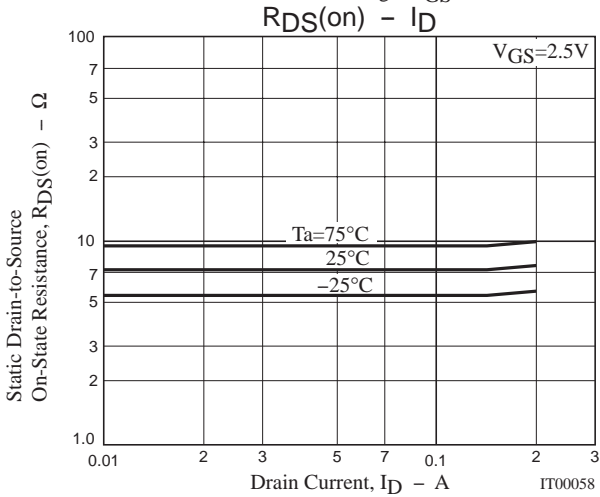
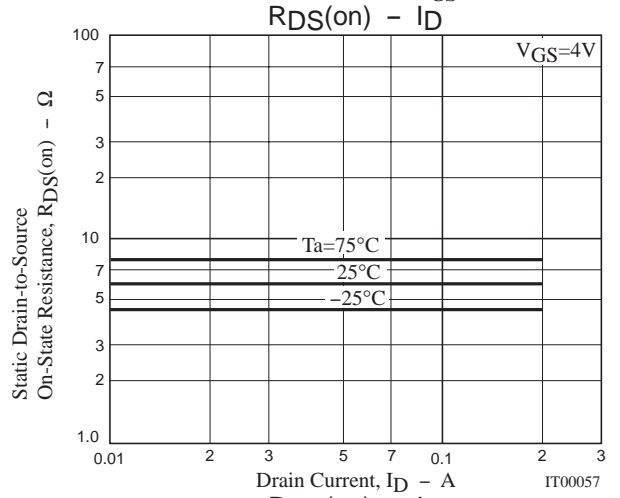
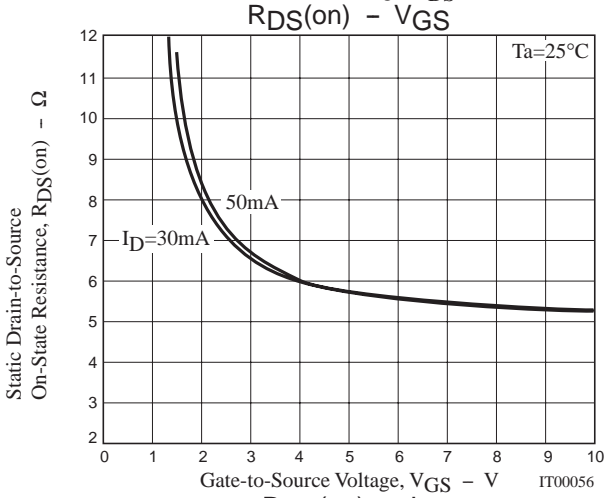
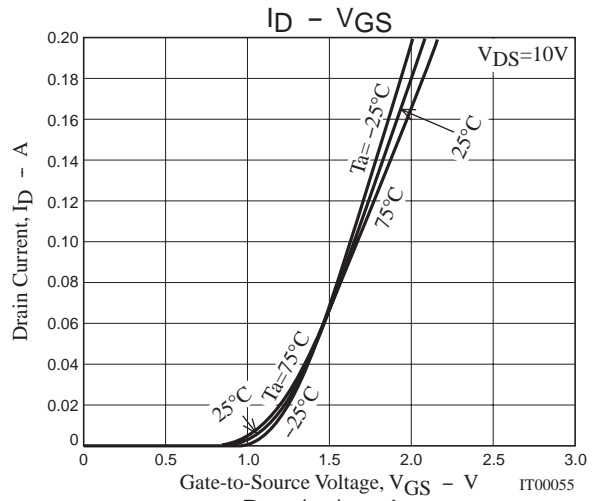
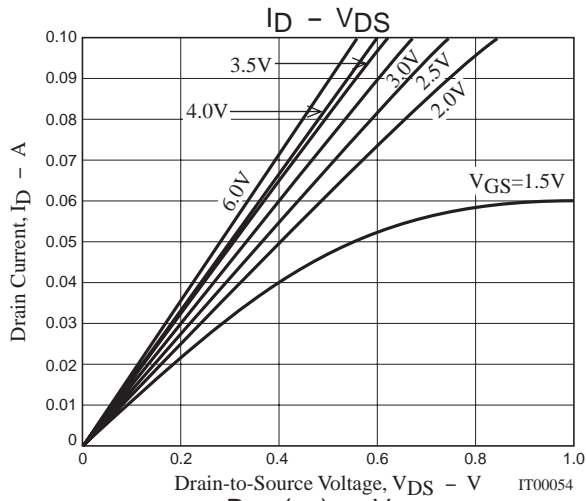
Electrical Connection



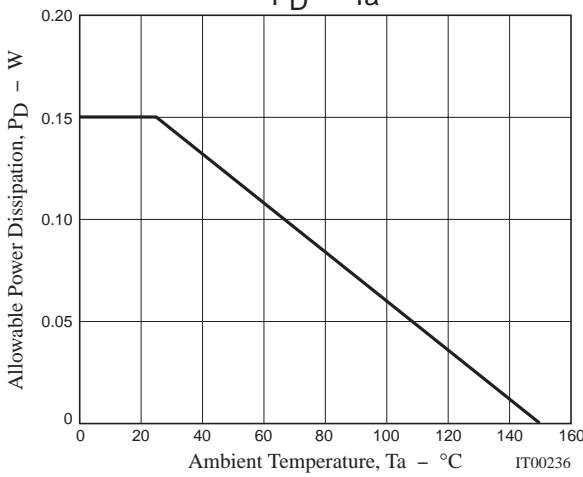
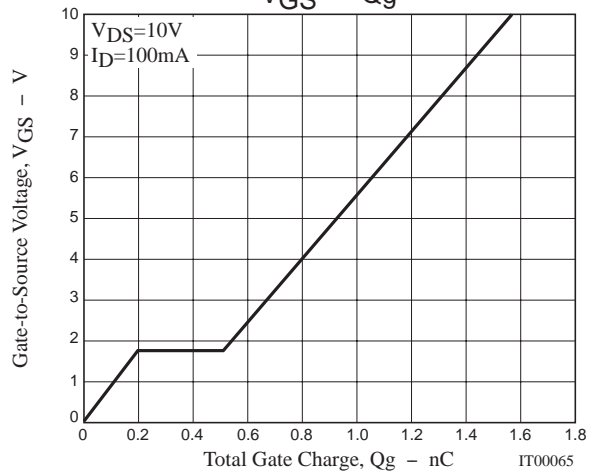
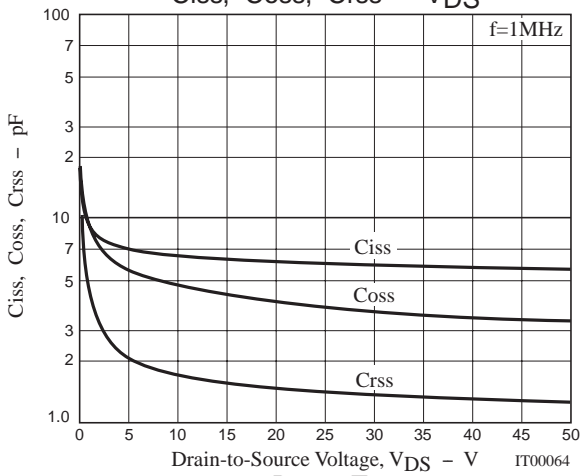
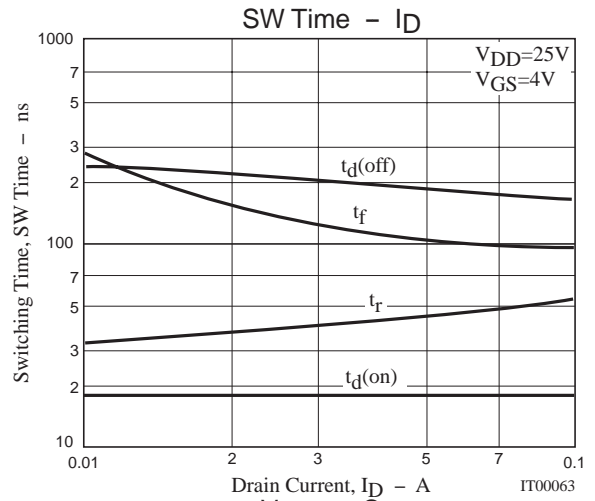
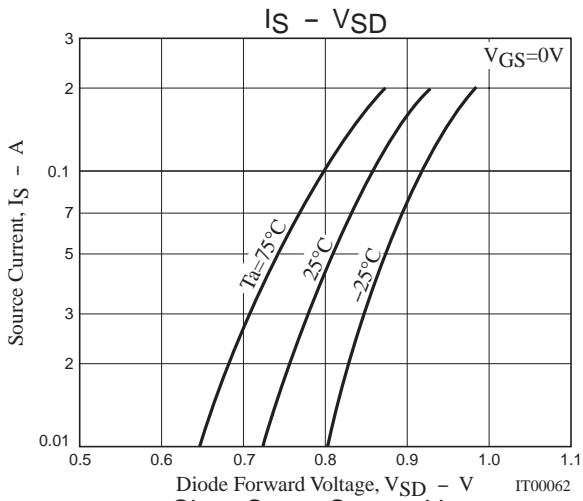
Switching Time Test Circuit



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