Ordering number : ENN7015

N-Channel Silicon MOSFET

EC4401C

Small Signal Switch and Interface Applications

Features

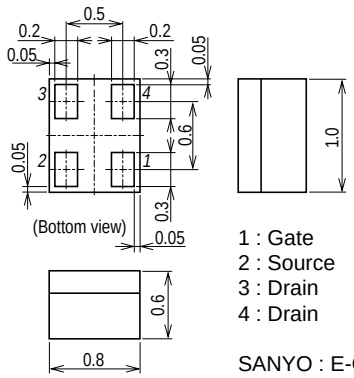
- Low ON-resistance.
- Ultrahigh-speed switching.
- 2.5V drive.

Package Dimensions

unit : mm

2197

[EC4401C]



1 : Gate
2 : Source
3 : Drain
4 : Drain

SANYO : E-CSP1008-4

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	V_{GSS}		±10	V
Drain Current (DC)	I_D		0.15	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	0.6	A
Allowable Power Dissipation	P_D		0.15	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-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}=±8V, V_{DS}=0			±10	μA
Cutoff Voltage	$V_{GS}(off)$	V_{DS}=10V, I_D=100μA	0.4		1.3	V
Forward Transfer Admittance	$\|yfs\|$	V_{DS}=10V, I_D=80mA	0.15	0.22		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=80mA, V_{GS}=4V		2.9	3.7	Ω
	$R_{DS}(on)2$	I_D=40mA, V_{GS}=2.5V		3.7	5.2	Ω
	$R_{DS}(on)3$	I_D=10mA, V_{GS}=1.5V		6.4	12.8	Ω

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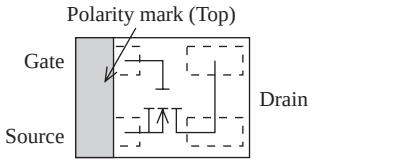
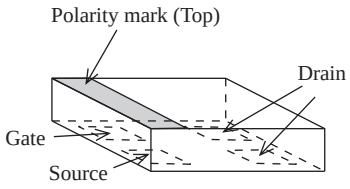
Continued from preceding page.

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		7.0		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		5.9		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		2.3		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		19		ns
Rise Time	t_{r}	See specified Test Circuit.		65		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit.		155		ns
Fall Time	t_{f}	See specified Test Circuit.		120		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=10V, I_{D}=150mA		1.58		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=10V, I_{D}=150mA		0.26		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=10V, V_{GS}=10V, I_{D}=150mA		0.31		nC
Diode Forward Voltage	V_{SD}	I_{S}=150mA, V_{GS}=0		0.95	1.2	V

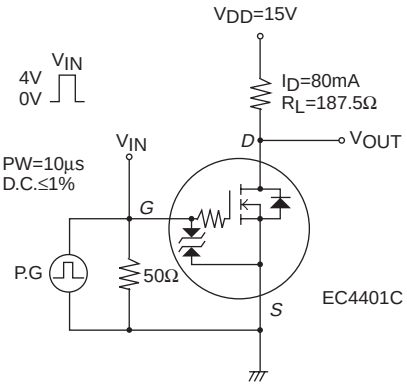
Type No. Indication(Top view)

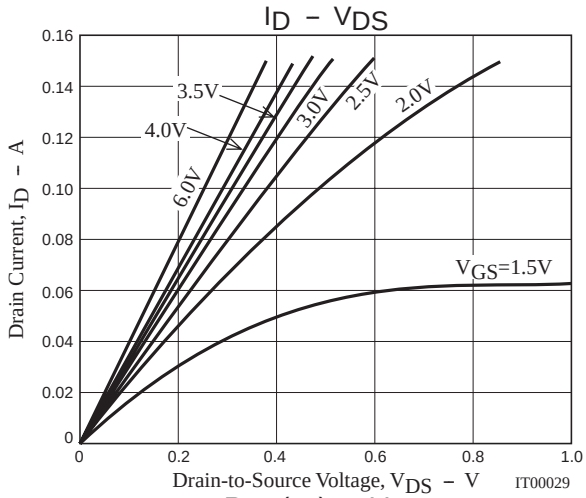
Electrical Connection(Top view)

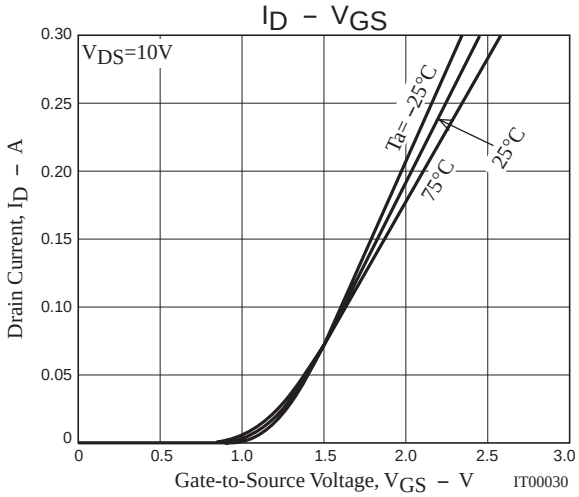


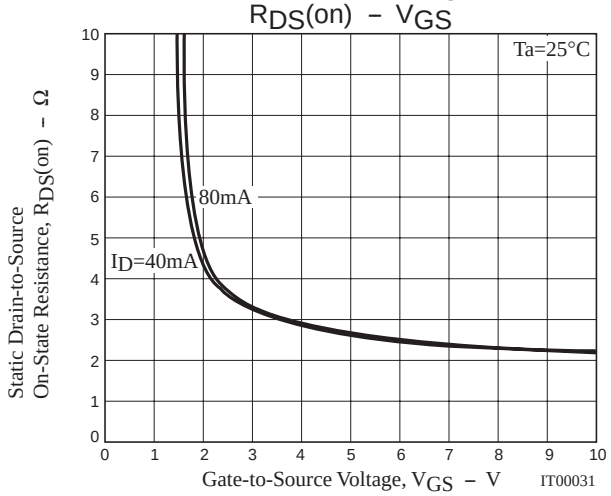


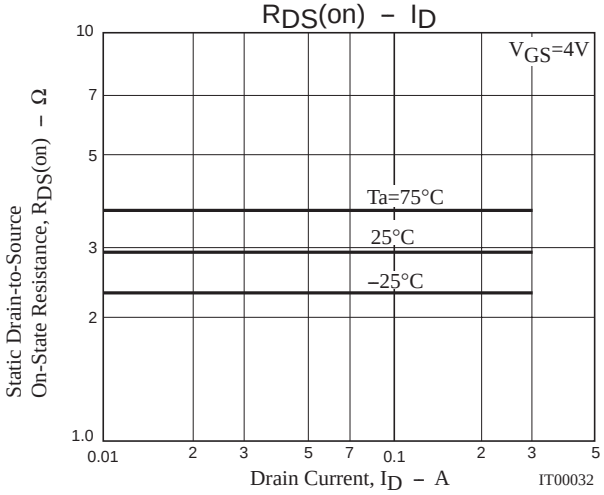
Switching Time Test Circuit



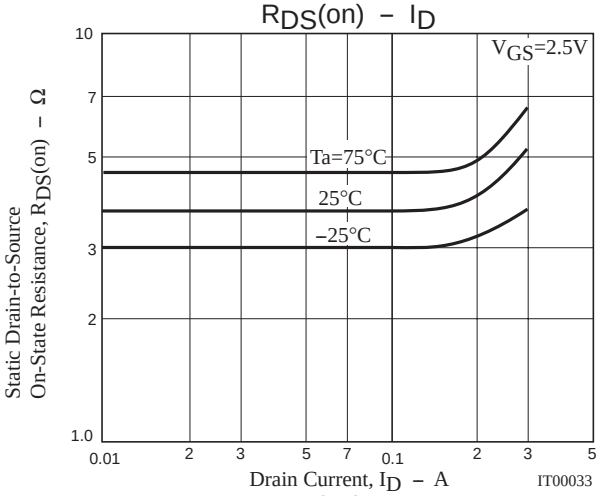




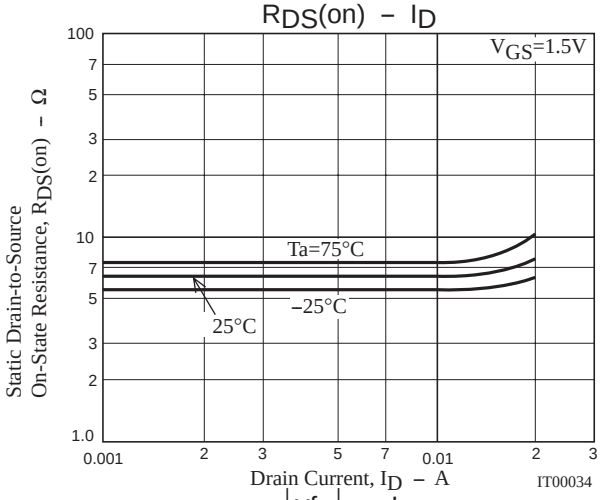




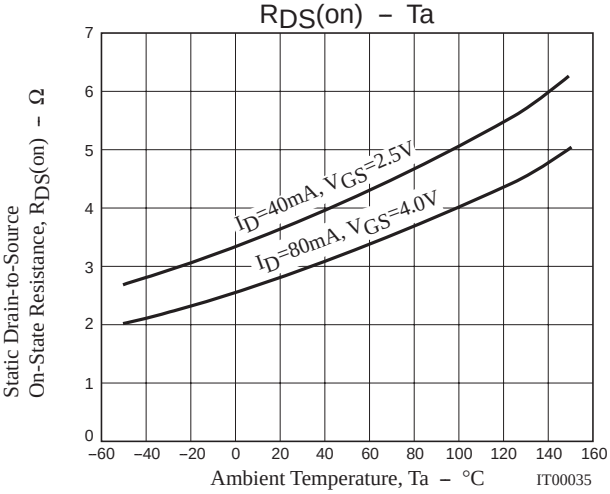
$R_{DS}(on)$ – I_D



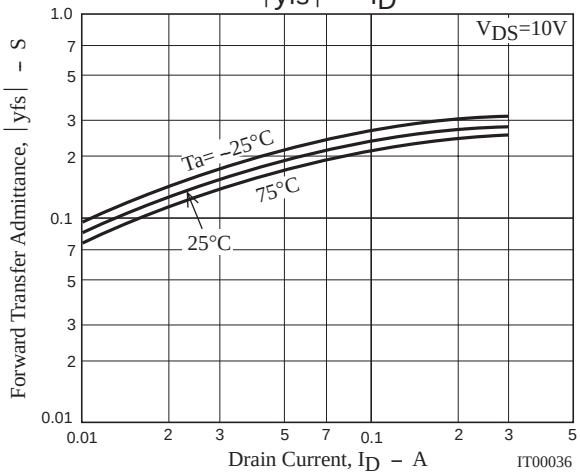
$R_{DS}(on)$ – I_D



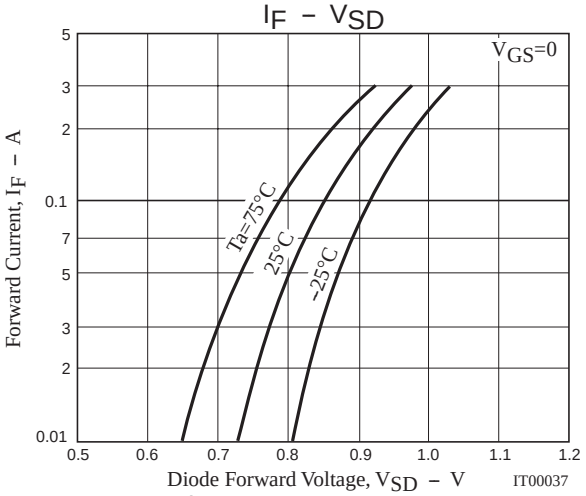
$R_{DS}(on)$ – Ta



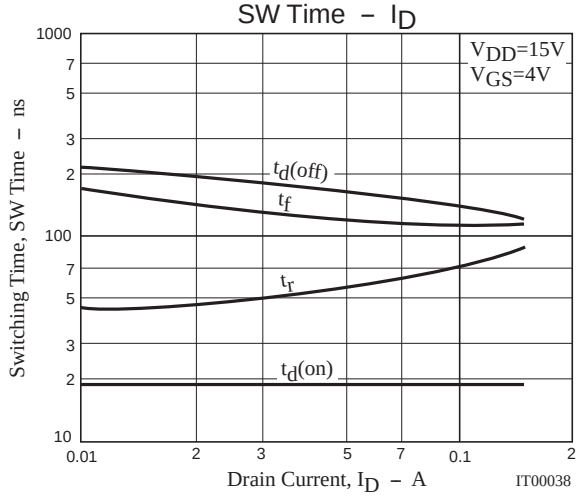
$|yfs|$ – I_D



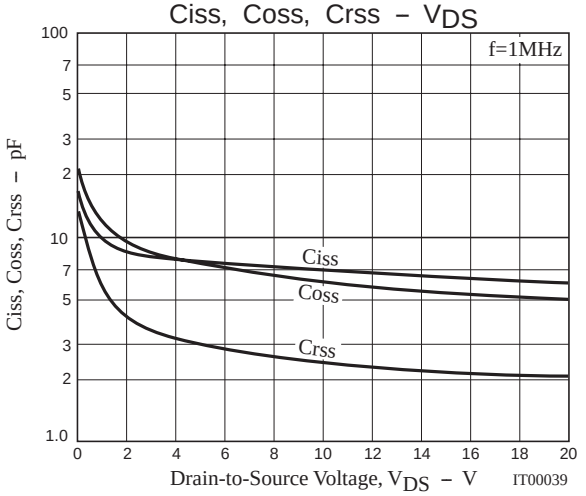
I_F – V_{SD}



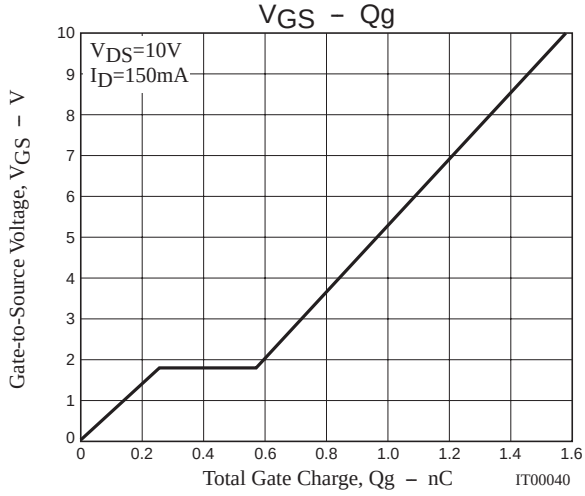
SW Time – I_D

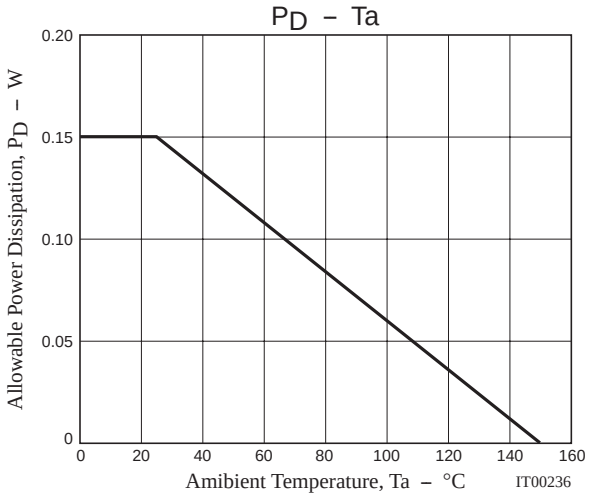


Ciss, Coss, Crss – V_{DS}



V_{GS} – Qg





Note on usage : Since the EC4401C is designed for high-speed switching applications, please avoid using this device in the vicinity of highly charged objects.