

## SANYO Semiconductors DATA SHEET

N-Channel Silicon MOSFET

# **EC4405C** — General-Purpose Switching Device **Applications**

#### **Features**

- · 4V drive.
- · Halogen Free compliance (UL94 HB).

#### **Specifications**

#### Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	VDSS		30	V
Gate-to-Source Voltage	VGSS		±20	V
Drain Current (DC)	ID		300	mA
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	1.2	А
Allowable Power Dissipation	PD	When mounted on glass epoxy substrate (145mm×80mm×1.6mm)	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			1.1
			min	typ	max	Unit
Drain-to-Source Breakdown Voltage	V(BR)DSS	I <sub>D</sub> =1mA, V <sub>G</sub> S=0V	30			V
Zero-Gate Voltage Drain Current	IDSS	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V			1	μΑ
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μΑ
Cutoff Voltage	VGS(off)	V <sub>DS</sub> =10V, I <sub>D</sub> =100μA	1.2		2.6	V
Forward Transfer Admittance	yfs	V <sub>DS</sub> =10V, I <sub>D</sub> =150mA	170	290		mS
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=150mA, VGS=10V		660	900	mΩ
	R <sub>DS</sub> (on)2	ID=80mA, VGS=4V		1.5	2.2	Ω
Input Capacitance	Ciss	V <sub>DS</sub> =10V, f=1MHz		22		pF
Output Capacitance	Coss	VDS=10V, f=1MHz		7.5		pF
Reverse Transfer Capacitance	Crss	V <sub>DS</sub> =10V, f=1MHz		3.6		pF

Continued on next page.

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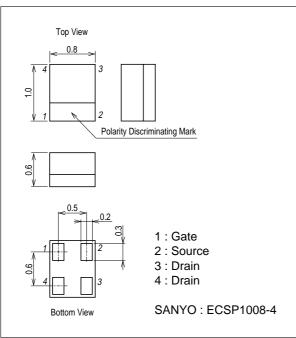
#### EC4405C

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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	Offic
Turn-ON Delay Time	t <sub>d</sub> (on)	See specified Test Circuit.		14		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit.		17.5		ns
Turn-OFF Delay Time	t <sub>d</sub> (off)	See specified Test Circuit.		65		ns
Fall Time	tf	See specified Test Circuit.		41		ns
Total Gate Charge	Qg	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =300mA		1.68		nC
Gate-to-Source Charge	Qgs	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =300mA		0.54		nC
Gate-to-Drain "Miller" Charge	Qgd	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =300mA		0.12		nC
Diode Forward Voltage	V <sub>SD</sub>	IS=300mA, VGS=0V		0.86	1.2	V

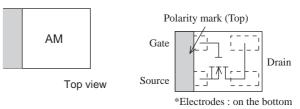
#### **Package Dimensions**

unit : mm (typ) 7036-001



#### Type No. Indication

#### **Electrical Connection**



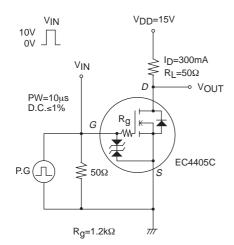
Polarity mark (Top)

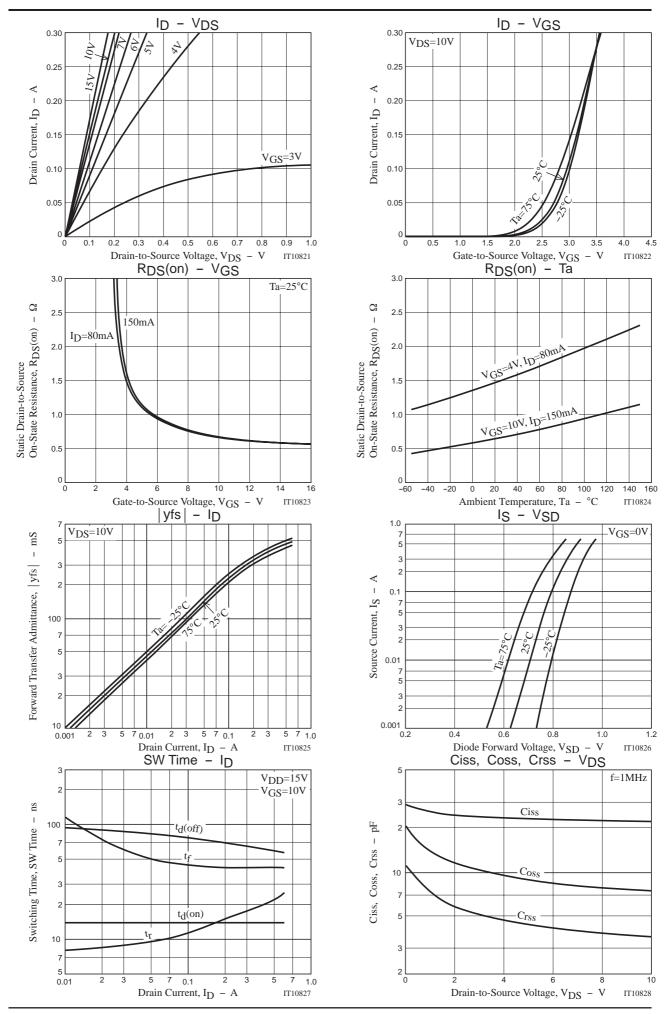
Drain

Gate

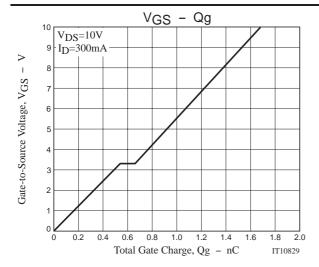
Source

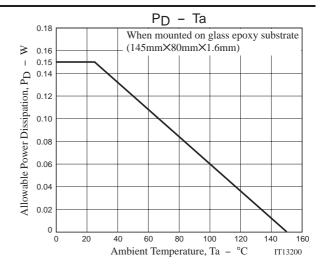
### **Switching Time Test Circuit**





#### EC4405C





Note on usage: Since the EC4405C is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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