Ordering number : EN8252A

SANYO Semiconductors

DATA SHEET

N-Channel Silicon MOSFET

CPH3431 — General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 4V drive.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		200	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		0.6	A
Drain Current (Pulse)	I_{DP}	PW≤10µs, duty cycle≤1%	2.4	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm²×0.8mm)	1.0	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}=0V	200			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=200V, V_{GS}=0V			10	µA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0V			±10	µA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	1.2		2.6	V
Forward Transfer Admittance	|yfs|	V_{DS}=10V, I_D=300mA	0.6	1		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=300mA, V_{GS}=10V		1.8	2.4	Ω
	R_{DS}(on)2	I_D=300mA, V_{GS}=4V		2.0	2.8	Ω
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		340		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		16		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		10		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		10		ns
Rise Time	t_r	See specified Test Circuit.		4		ns
Turn-OFF Delay Time	t_d(off)	See specified Test Circuit.		35		ns
Fall Time	t_f	See specified Test Circuit.		27		ns

Marking : ZG

Continued on next page.

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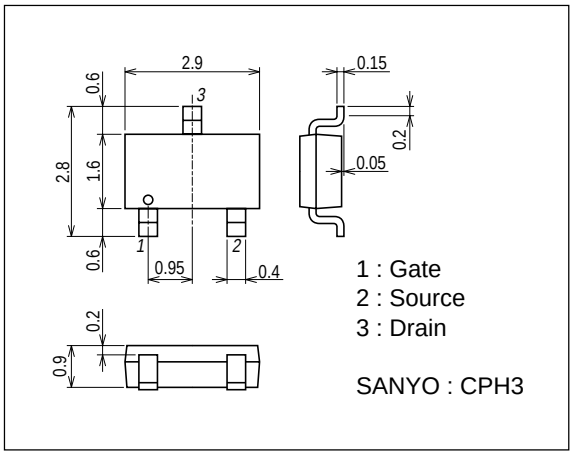
Continued from preceding page.

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	V_{DS}=100V, V_{GS}=10V, I_D=600mA		7		nC
Gate-to-Source Charge	Qgs	V_{DS}=100V, V_{GS}=10V, I_D=600mA		1		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=100V, V_{GS}=10V, I_D=600mA		0.8		nC
Diode Forward Voltage	V_{SD}	I_S=600mA, V_{GS}=0V		0.79	1.2	V

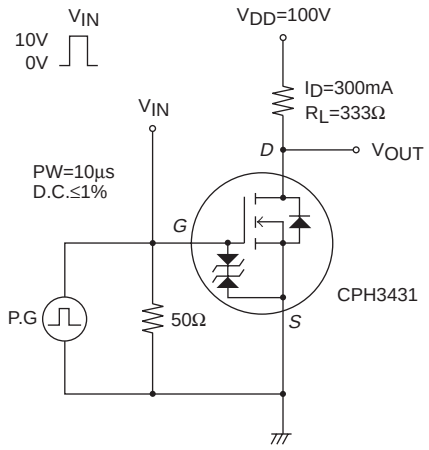
Package Dimensions

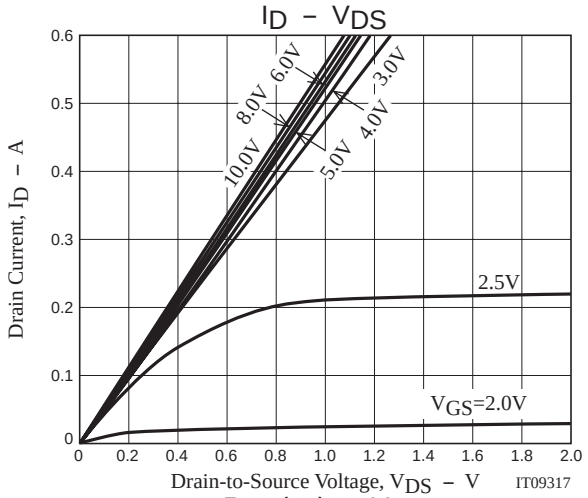
unit : mm

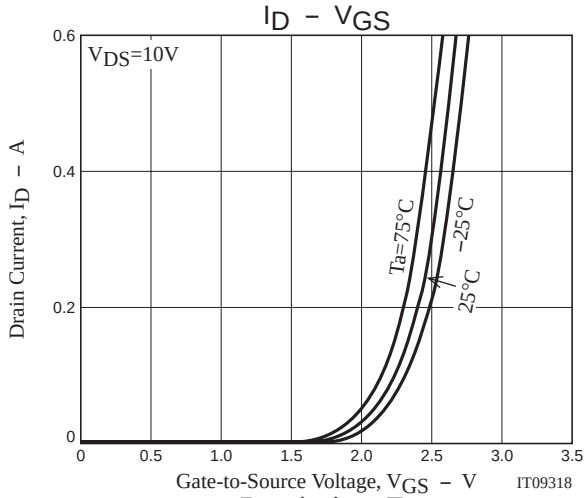
7015A-004

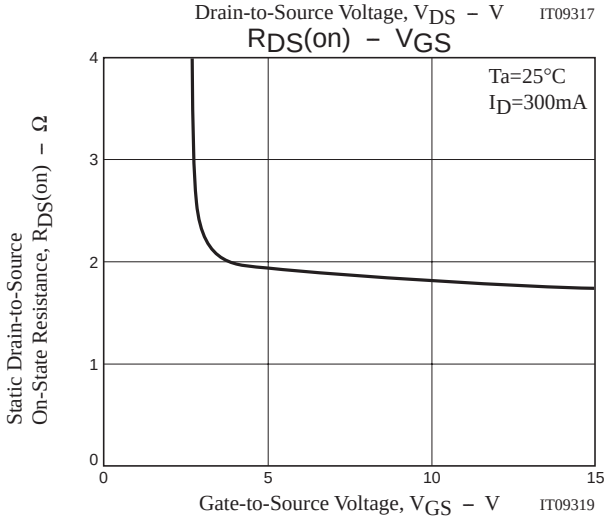


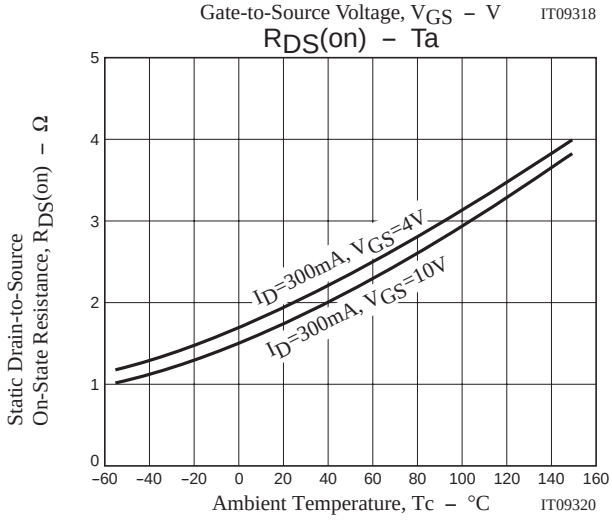
Switching Time Test Circuit

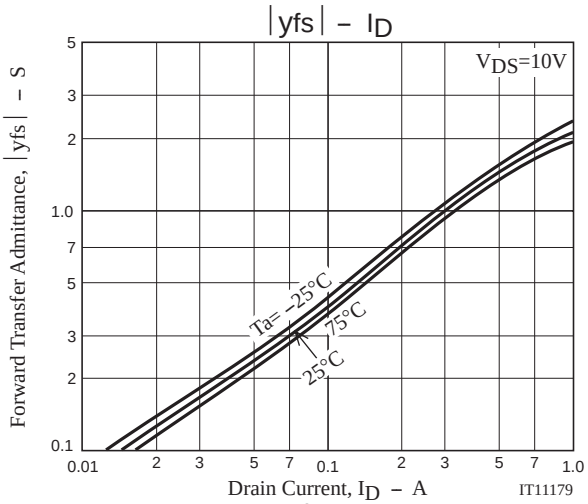


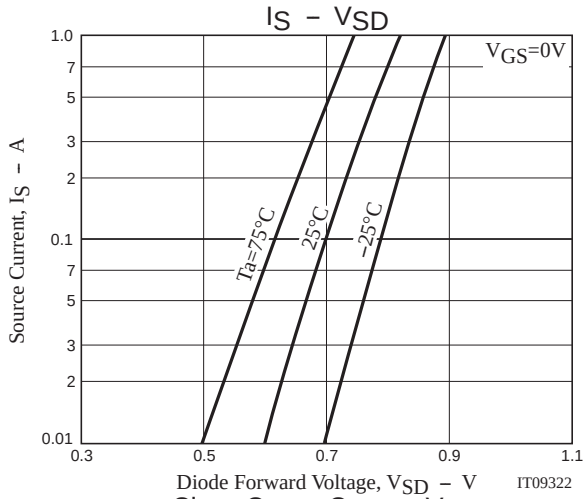


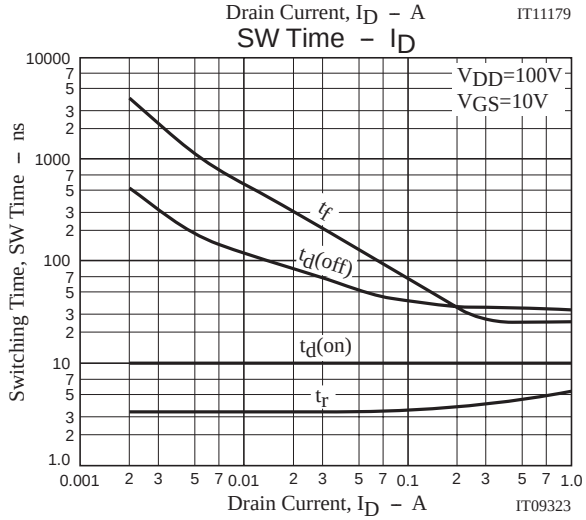


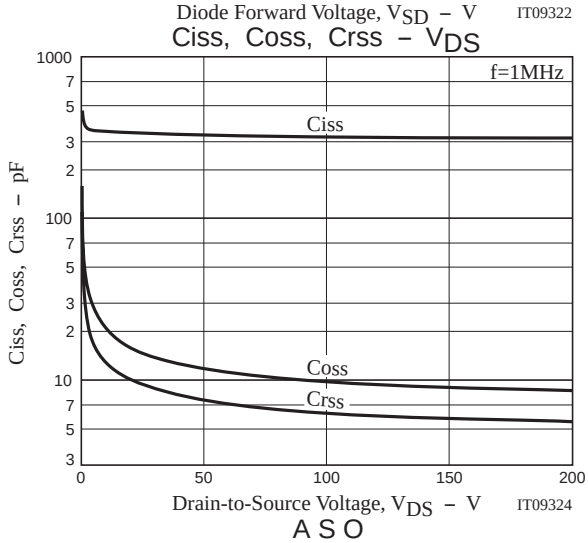


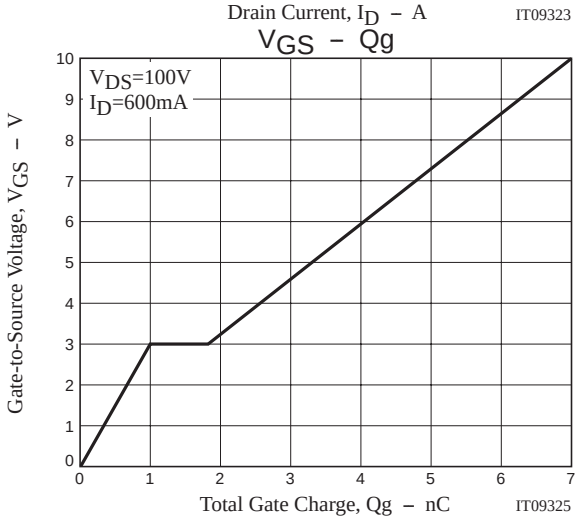


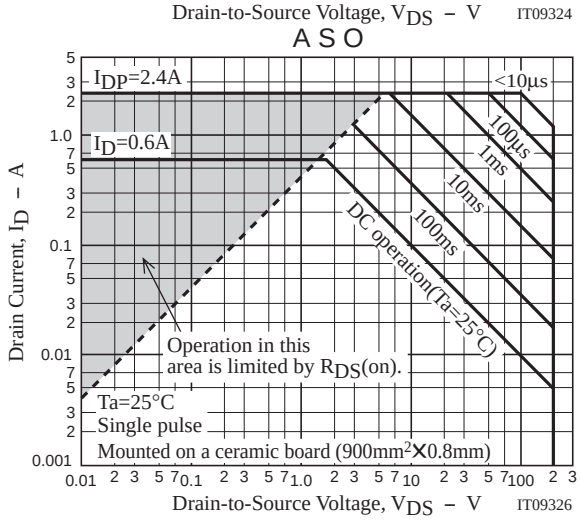

|yfs| – ID
VDS=10V
Ta= –25°C
75°C
25°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT11179

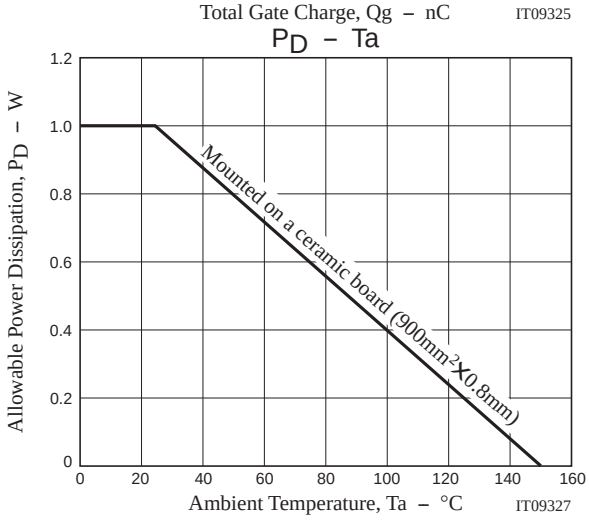

IS – VSD
VGS=0V
Ta=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT09322


SW Time – ID
VDD=100V
VGS=10V
tf
td(off)
td(on)
tr
Switching Time, SW Time – ns
Drain Current, ID – A
IT09323


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT09324


VGS – Qg
VDS=100V
ID=600mA
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT09325


A S O
IDP=2.4A
ID=0.6A
<10μs
100μs
1ms
10ms
100ms
DC operation(Ta=25°C)
Operation in this
area is limited by RDS(on).
Ta=25°C
Single pulse
Mounted on a ceramic board (900mm2×0.8mm)
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT09326


PD – Ta
Mounted on a ceramic board (900mm2×0.8mm)
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT09327

Note on usage : Since the CPH3431 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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