Ordering number:ENN6395A

P-Channel Silicon MOSFET

CPH6303

Ultrahigh-Speed Switching Applications

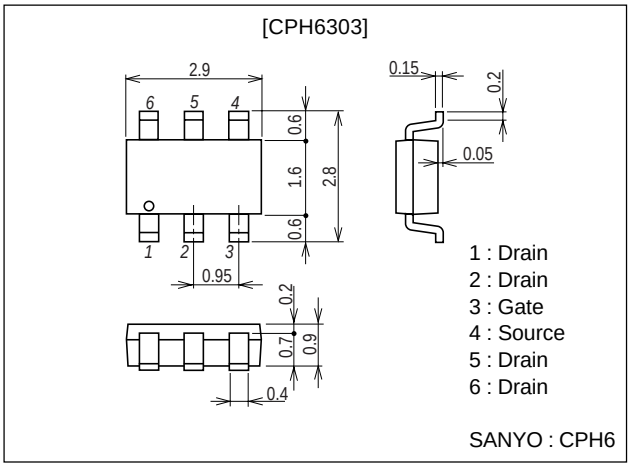
Features

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

Package Dimensions

unit:mm

2151A



Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		–20	V
Gate-to-Source Voltage	V_{GSS}		±10	V
Drain Current (DC)	I_D		–4	A
Drain Current (pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	–16	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm²×0.8mm)	1.6	W
		Mounted on a FR4 board, PW≤5s	2.0	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}=0	–20			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=–20V, V_{GS}=0			–1	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=–1mA	–0.4		–1.4	V
Forward Transfer Admittance	| yfs |	V_{DS}=–10V, I_D=–2A	3.5	6.0		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=–2A, V_{GS}=–4V		70	90	mΩ
	$R_{DS}(on)2$	I_D=–1A, V_{GS}=–2.5V		100	130	mΩ

Marking : JC

Continued on next page.

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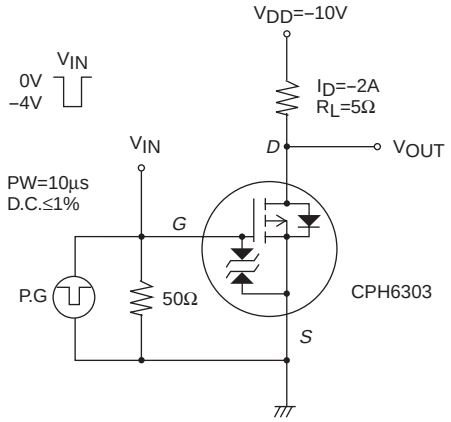
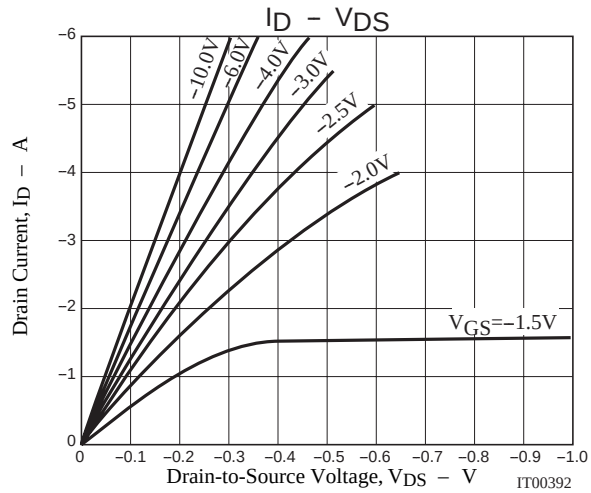
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

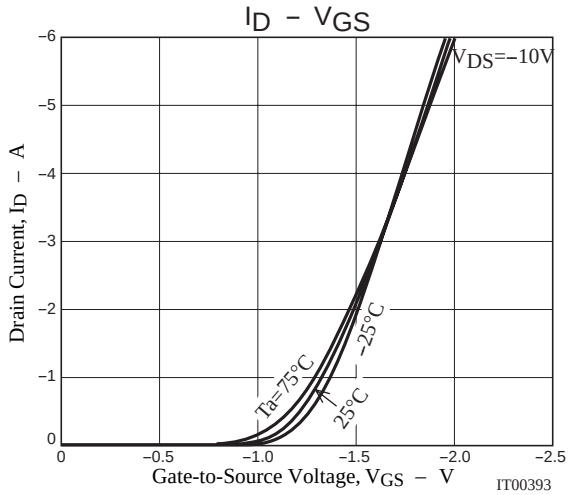
Continued from preceding page.

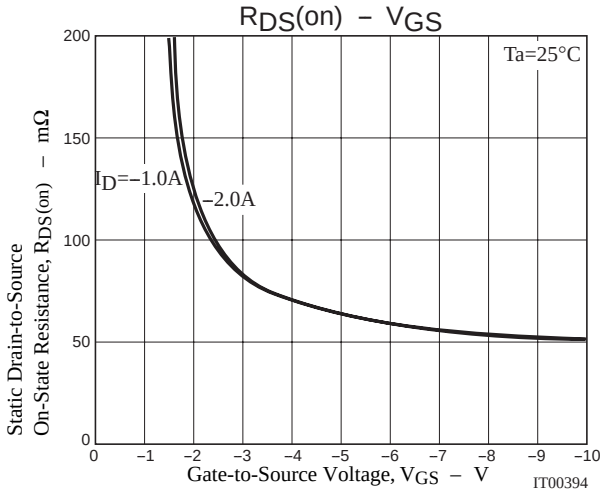
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=–10V, f=1MHz		820		pF
Output Capacitance	Coss	V_{DS}=–10V, f=1MHz		150		pF
Reverse Transfer Capacitance	Crss	V_{DS}=–10V, f=1MHz		100		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		17		ns
Rise Time	t_r	See specified Test Circuit		60		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		66		ns
Fall Time	t_f	See specified Test Circuit		56		ns
Total Gate Charge	Qg	V_{DS}=–10V, V_{GS}=–10V, I_D=–4A		17		nC
Gate-to-Source Charge	Qgs	V_{DS}=–10V, V_{GS}=–10V, I_D=–4A		1.5		nC
Gate-to-Drain "Miller" Charge	Qgd	V_{DS}=–10V, V_{GS}=–10V, I_D=–4A		2		nC
Diode Forward Voltage	V_{SD}	I_S=–4A, V_{GS}=0		–0.85	–1.5	V

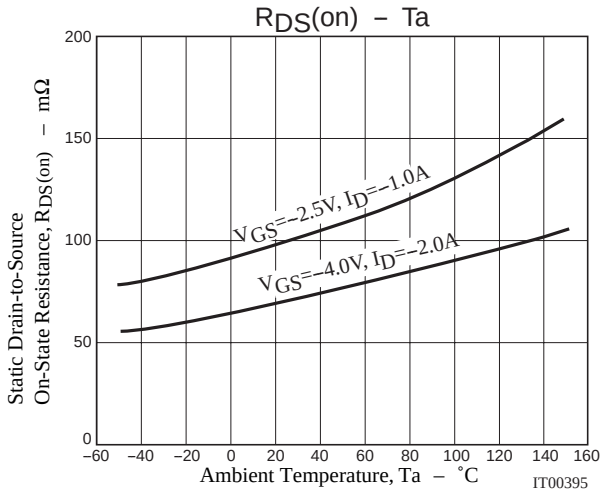
Switching Time Test Circuit

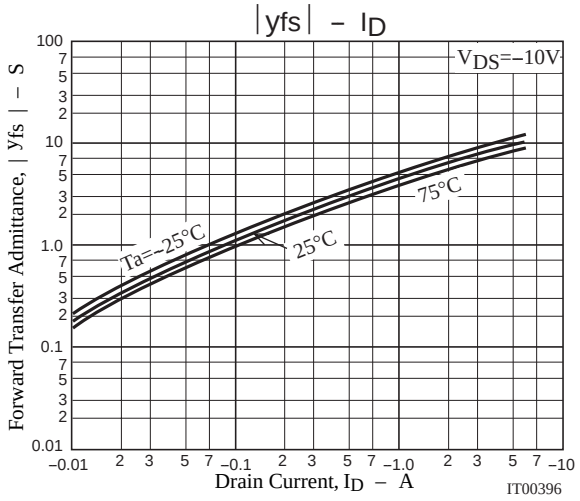


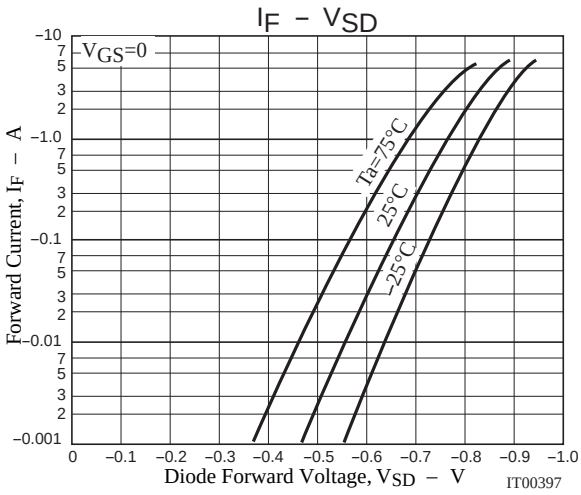


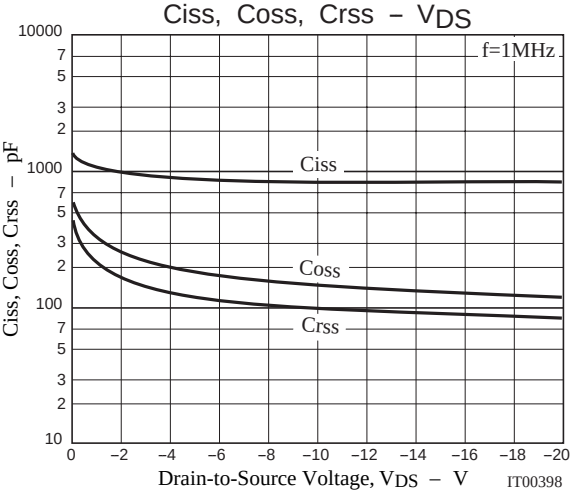


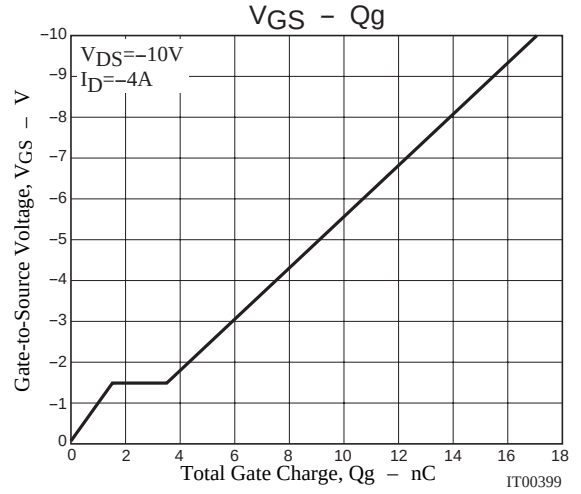


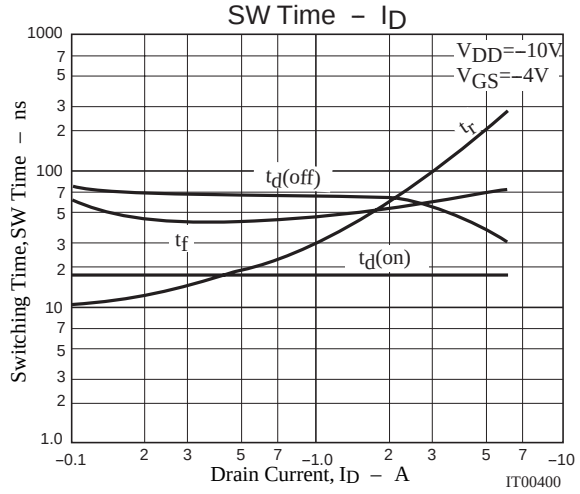


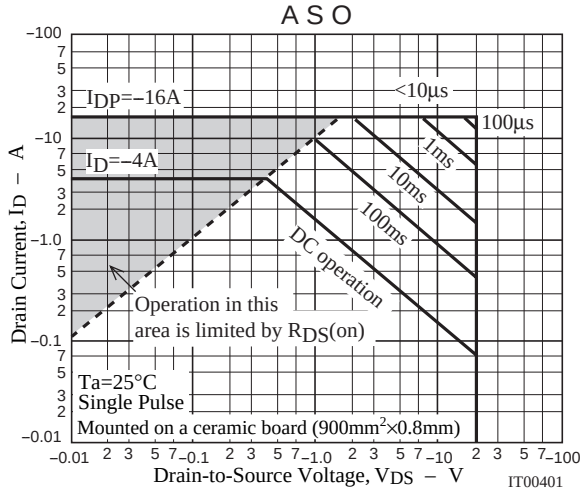

|yfs| – ID
VDS=–10V
Ta=–25°C
25°C
75°C
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT00396

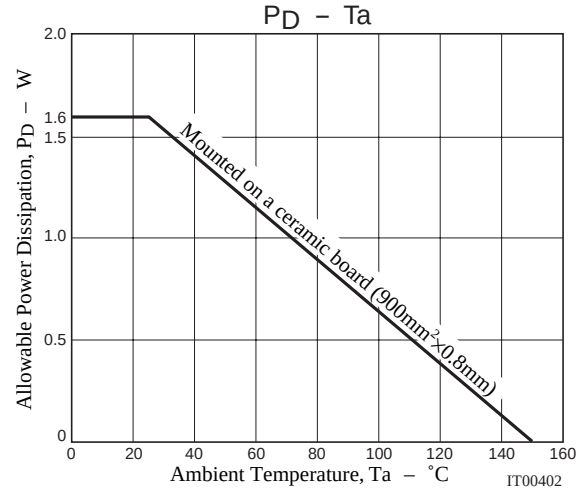

IF – VSD
VGS=0
Ta=75°C
25°C
–25°C
Forward Current, IF – A
Diode Forward Voltage, VSD – V
IT00397


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT00398


VGS – Qg
VDS=–10V
ID=–4A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT00399


SW Time – ID
VDD=–10V
VGS=–4V
tr
td(off)
tf
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT00400


A S O
IDP=–16A
ID=–4A
<10μs
100μs
1ms
10ms
100ms
DC operation
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
IT00401


PD – Ta
Mounted on a ceramic board (900mm2×0.8mm)
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT00402