Ordering number : ENA0398A

SANYO Semiconductors

DATA SHEET

N-Channel Silicon MOSFET

CPH6622 — General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- 2.5V drive.
- Best suited for LiB charging and discharging switch.
- Common-drain type.
- With a built-in gate resistor.

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}		±12	V
Drain Current (DC)	I_D		3.0	A
Drain Current (Pulse)	I_{DP}	PW≤12ms, duty cycle≤1%	18	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm²×0.8mm)1unit	0.9	W
Total Dissipation	P_T	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	20			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}= ±8V, V_{DS}=0V			±10	μA
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=10V, I_D=1mA	0.6		1.2	V

Marking : BW

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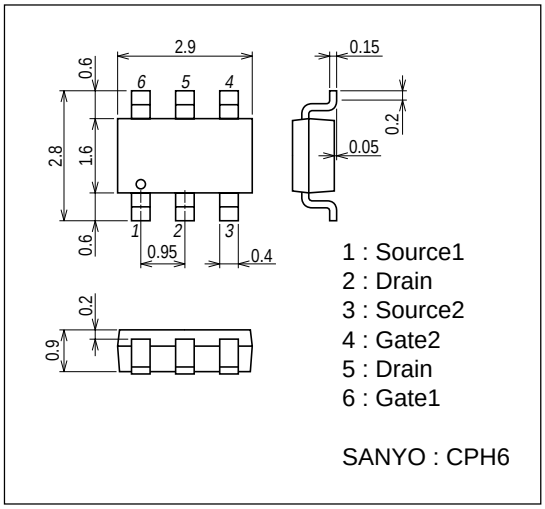
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Forward Transfer Admittance	|yfs|	V_{DS}=10V, I_D=1.5A	1.5	3.3		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=3A, V_{GS}=4V	46	58	70	mΩ
	R_{DS}(on)2	I_D=3A, V_{GS}=2.5V	50	75	100	mΩ
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		210		ns
Rise Time	t_r	See specified Test Circuit.		690		ns
Turn-OFF Delay Time	t_d(off)	See specified Test Circuit.		1400		ns
Fall Time	t_f	See specified Test Circuit.		1000		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=4V, I_D=3A		10.5		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=4V, I_D=3A		1.0		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=10V, V_{GS}=4V, I_D=3A		2.8		nC
Diode Forward Voltage	V_{SD}	I_S=3A, V_{GS}=0V		0.8	1.2	V

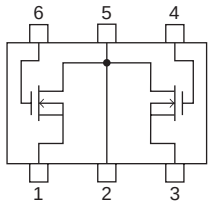
Package Dimensions

unit : mm (typ)

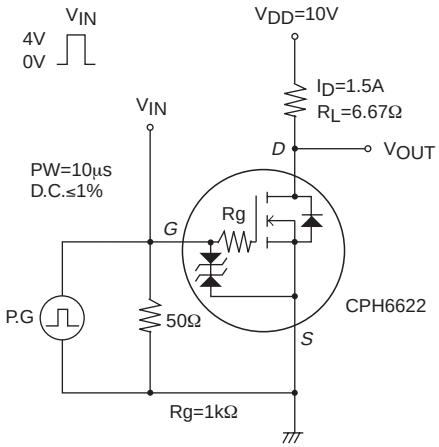
7018A-013

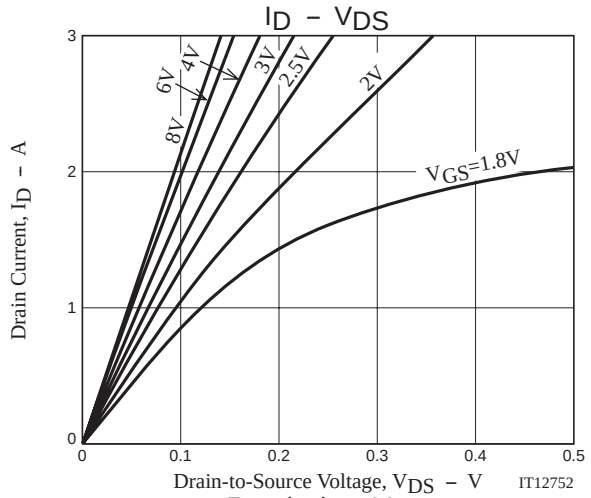


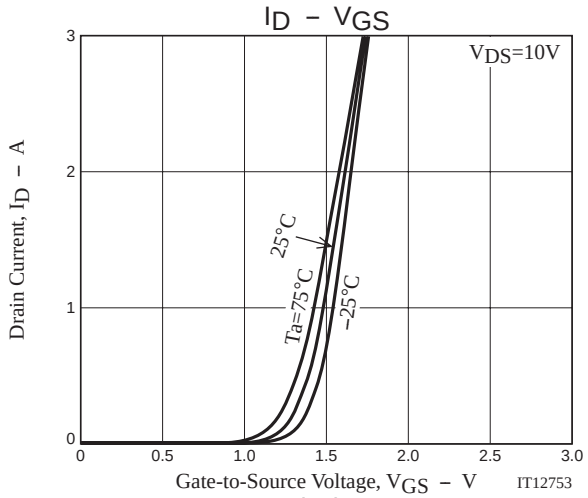
Electrical Connection

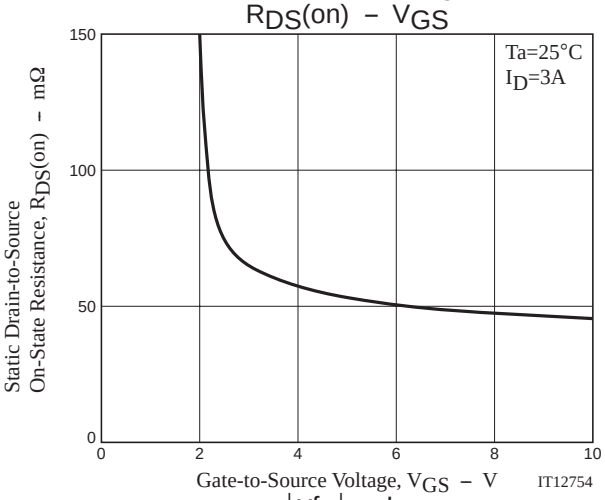


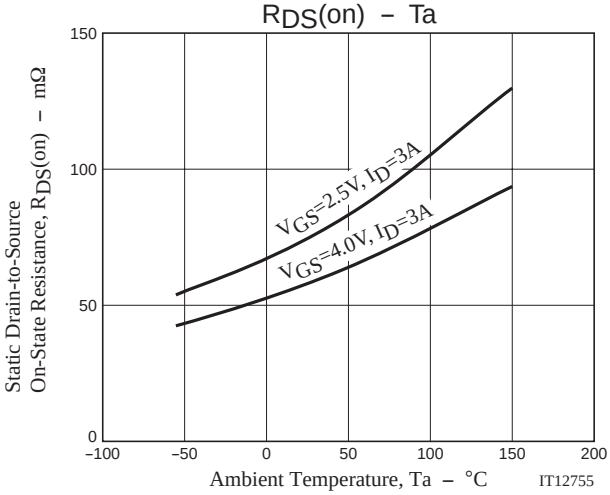
Switching Time Test Circuit

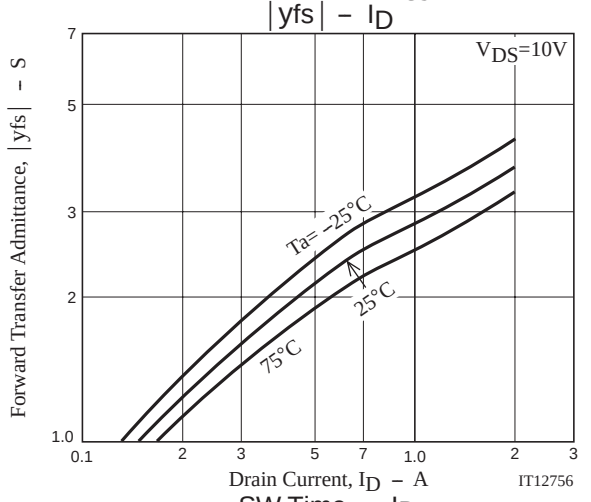


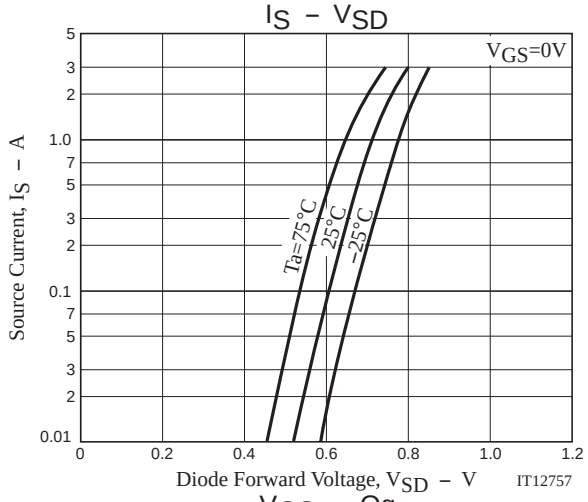

ID – VDS
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT12752
6V
4V
3V
2.5V
2V
8V
VGS=1.8V

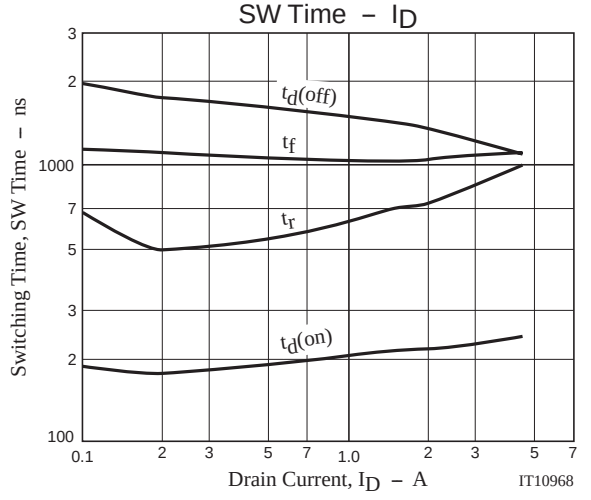

ID – VGS
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
IT12753
VDS=10V
25°C
Ta=75°C
–25°C

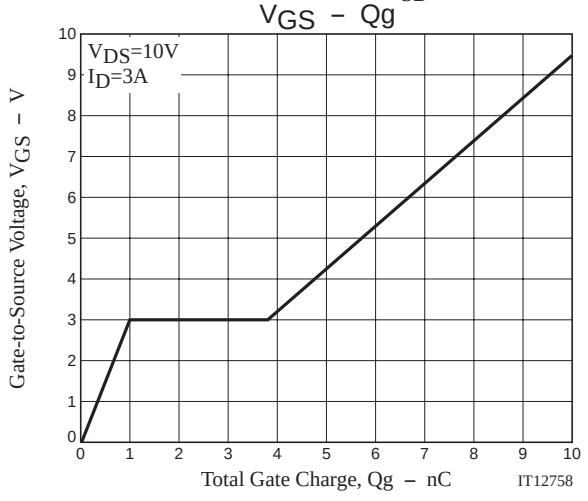

RDS(on) – VGS
Static Drain-to-Source
On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT12754
Ta=25°C
ID=3A

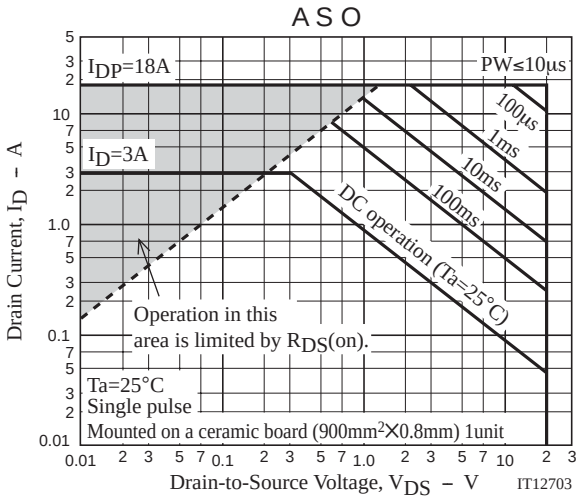

RDS(on) – Ta
Static Drain-to-Source
On-State Resistance, RDS(on) – mΩ
Ambient Temperature, Ta – °C
IT12755
VGS=2.5V, ID=3A
VGS=4.0V, ID=3A

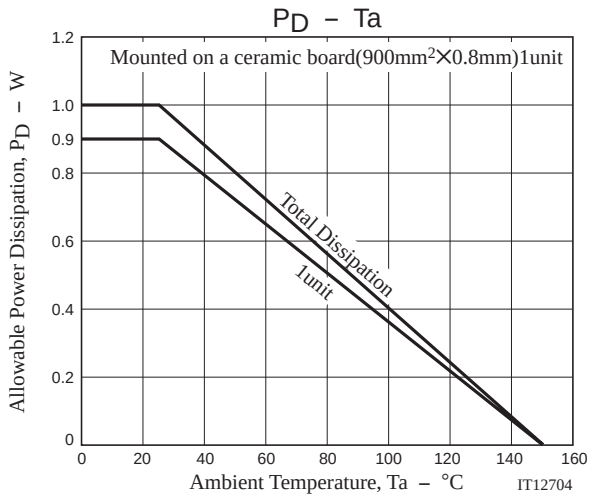

|yfs| – ID
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT12756
VDS=10V
Ta= –25°C
25°C
75°C


IS – VSD
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT12757
VGS=0V
Ta=75°C
25°C
–25°C


SW Time – ID
Switching Time, SW Time – ns
Drain Current, ID – A
IT10968
td(off)
tf
tr
td(on)


VGS – Qg
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT12758
VDS=10V
ID=3A





Note on usage : Since the CPH6622 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.