Ordering number : ENA1701

SANYO Semiconductors
DATA SHEET

N-Channel Silicon MOSFET

CPH3453 — General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- 2.5V drive.
- Halogen free compliance.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		250	V
Gate-to-Source Voltage	V_{GSS}		±10	V
Drain Current (DC)	I_D		300	mA
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	1.2	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (900mm^2×0.8mm)	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	250			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=250V, V_{GS}=0V			100	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	0.4		1.3	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=150mA	0.6	1		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	I_D=150mA, V_{GS}=4.5V		8.5	11	Ω
	$R_{DS(on)2}$	I_D=75mA, V_{GS}=2.5V		8.5	11	Ω

Marking : LK

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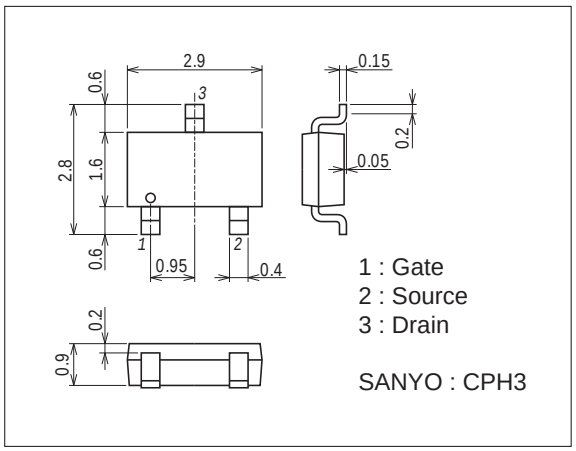
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		130		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		9.6		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		5.1		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		6.3		ns
Rise Time	t_{r}	See specified Test Circuit.		6.0		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit.		21		ns
Fall Time	t_{f}	See specified Test Circuit.		42		ns
Total Gate Charge	Qg	V_{DS}=125V, V_{GS}=4.5V, I_{D}=300mA		2.2		nC
Gate-to-Source Charge	Qgs	V_{DS}=125V, V_{GS}=4.5V, I_{D}=300mA		0.3		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=125V, V_{GS}=4.5V, I_{D}=300mA		0.8		nC
Diode Forward Voltage	V_{SD}	I_{S}=300mA, V_{GS}=0V		0.8	1.2	V

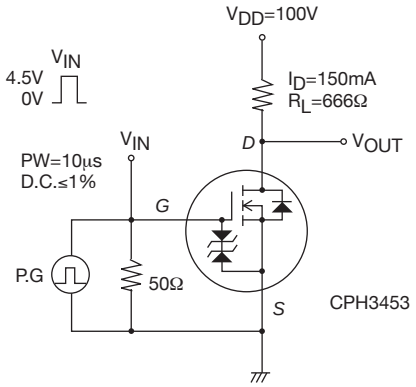
Package Dimensions

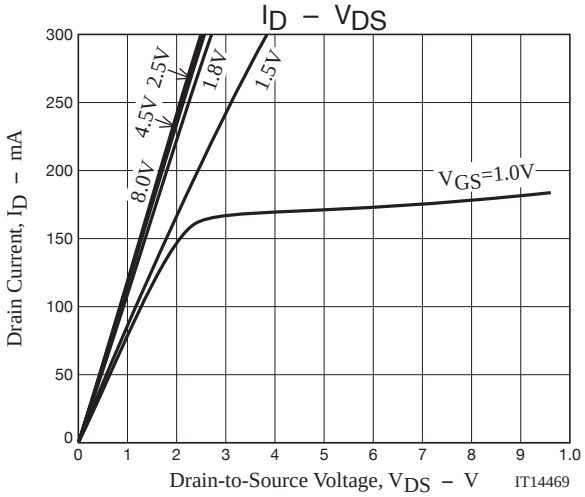
unit : mm (typ)

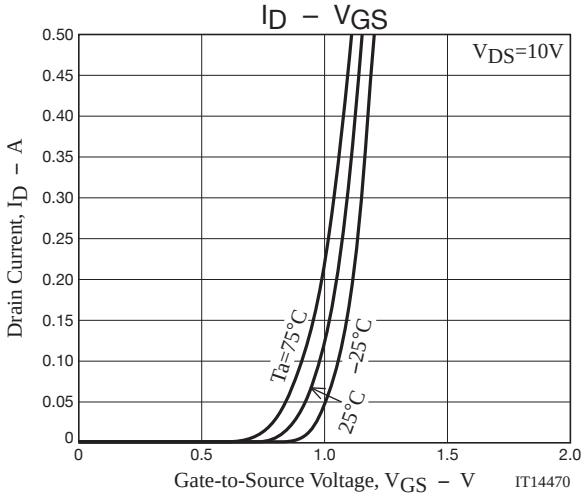
7015A-004

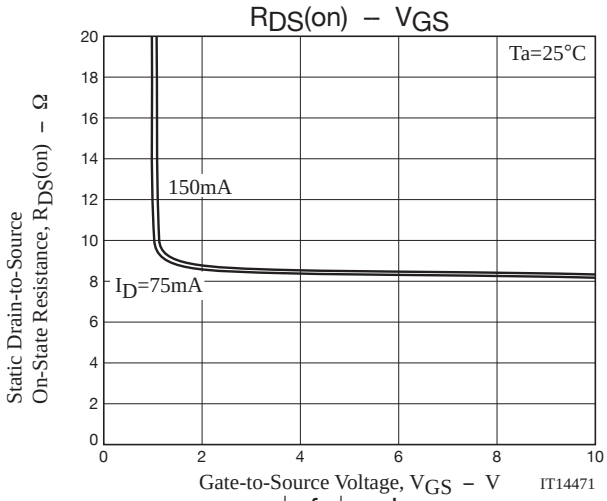


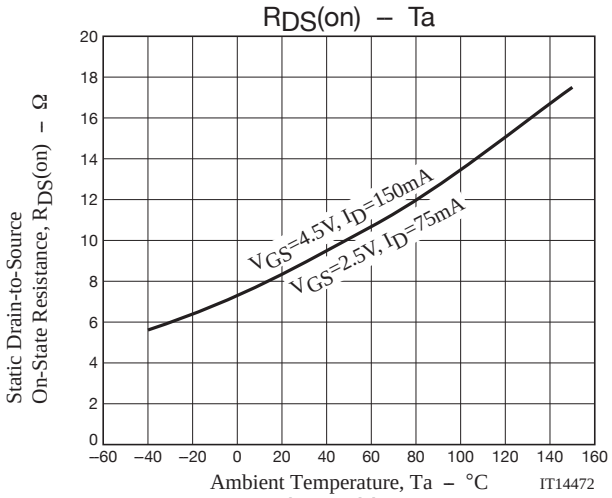
Switching Time Test Circuit

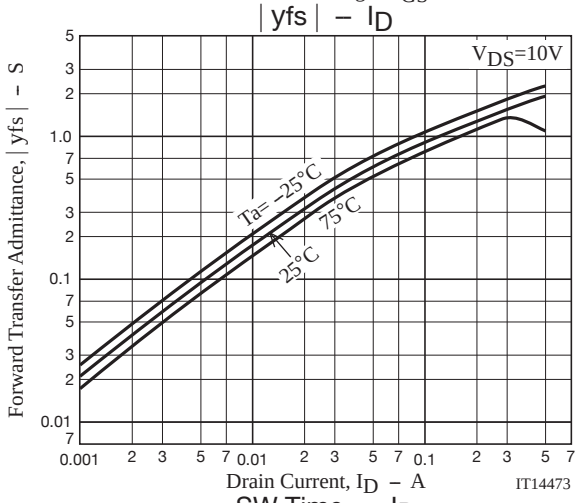


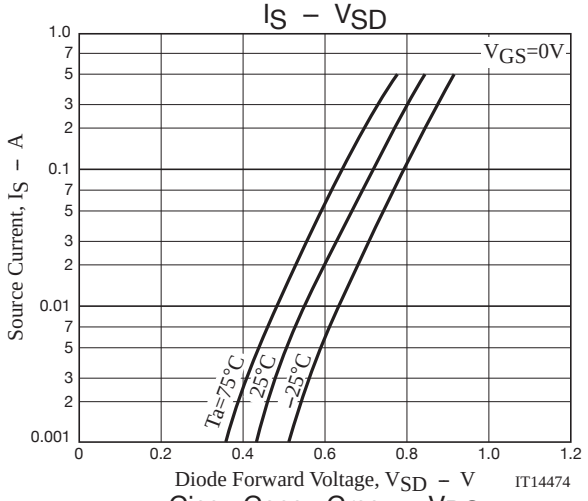


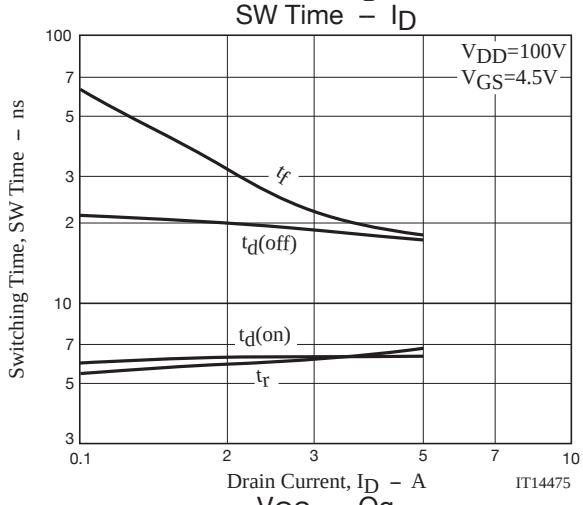


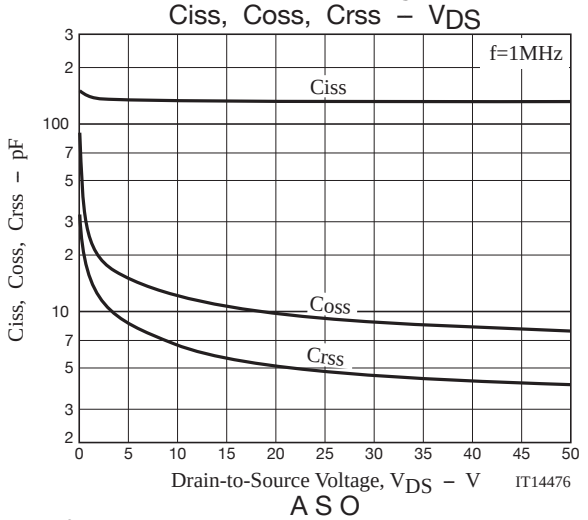

RDS(on) – VGS
Ta=25°C
150mA
ID=75mA
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Gate-to-Source Voltage, VGS – V
IT14471

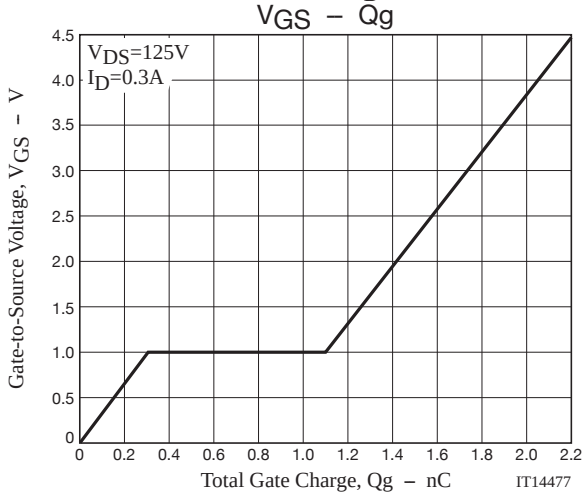

RDS(on) – Ta
VGS=4.5V, ID=150mA
VGS=2.5V, ID=75mA
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Ambient Temperature, Ta – °C
IT14472

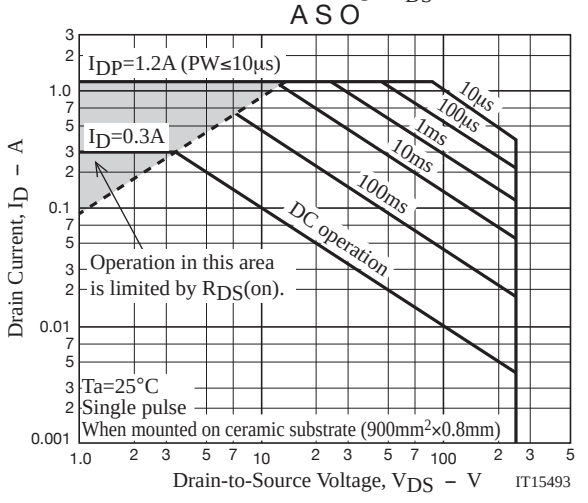

| yfs | – ID
VDS=10V
Ta= –25°C
25°C
75°C
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT14473

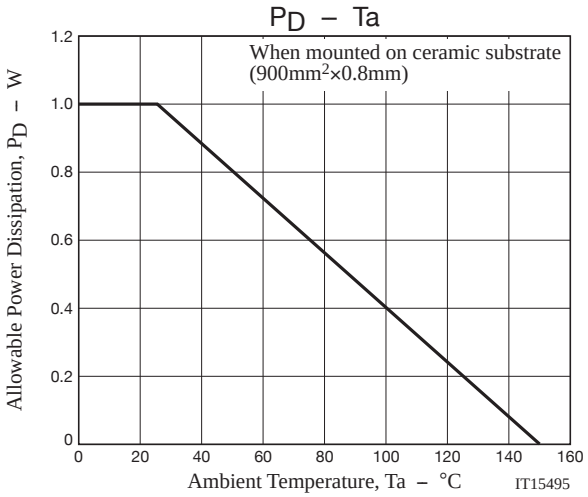

IS – VSD
VGS=0V
Ta=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT14474


SW Time – ID
VDD=100V
VGS=4.5V
tf
td(off)
td(on)
tr
Switching Time, SW Time – ns
Drain Current, ID – A
IT14475


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT14476


VGS – Qg
VDS=125V
ID=0.3A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT14477


A S O
IDP=1.2A (PW≤10μs)
ID=0.3A
10μs
100μs
1ms
10ms
100ms
DC operation
Operation in this area is limited by RDS(on).
Ta=25°C
Single pulse
When mounted on ceramic substrate (900mm²×0.8mm)
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT15493



Note on usage : Since the CPH3453 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.