Ordering number : ENA1803

SANYO Semiconductors

DATA SHEET

N-Channel Silicon MOSFET

CPH3456 — General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS}(on)1$=54mΩ(typ.)
- 1.8V drive
- Halogen free compliance

Specifications

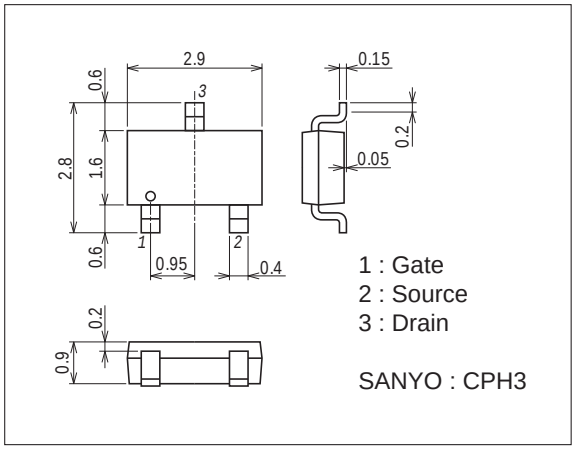
Absolute Maximum Ratings at Ta=25°C

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		3.5	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	14	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (900mm²×0.8mm)	1.0	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Package Dimensions

unit : mm (typ)

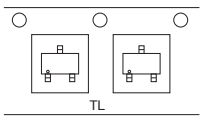
7015A-004



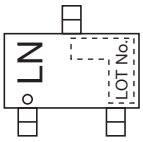
Product & Package Information

- Package : CPH3
- JEITA, JEDEC : SC-96, SC-95, SOT346, SOT457
- Minimum Packing Quantity : 3,000 pcs./reel

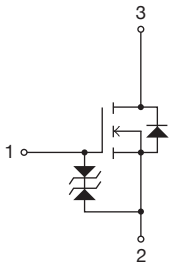
Packing Type: TL



Marking



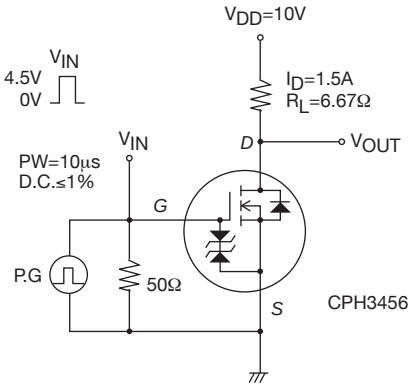
Electrical Connection

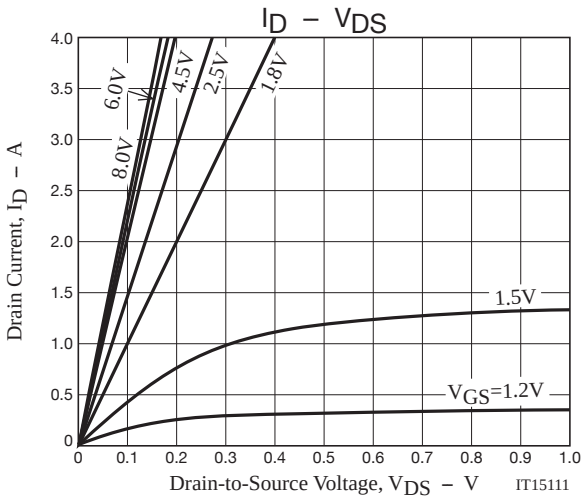


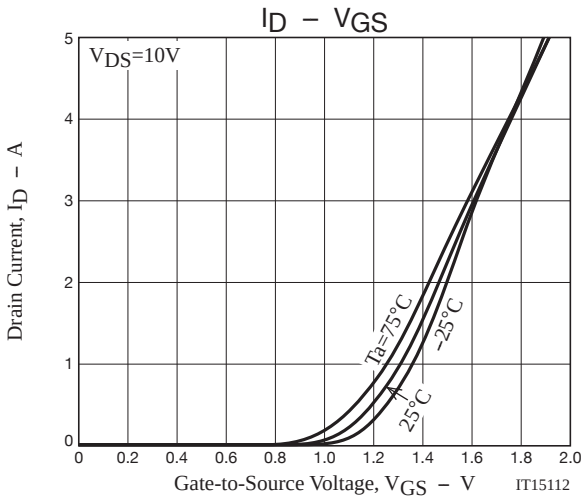
Electrical Characteristics at Ta=25°C

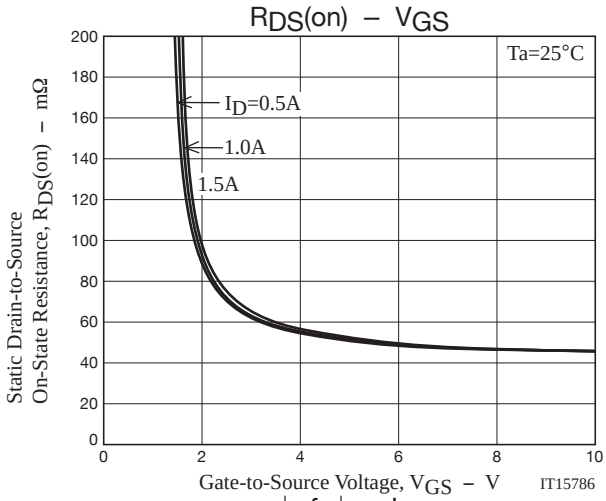
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0V	20			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V			±10	μA
Cutoff Voltage	$V_{GS}(off)$	V_{DS}=10V, I_D=1mA	0.4		1.3	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=1.5A		2.8		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=1.5A, V_{GS}=4.5V		54	71	mΩ
	$R_{DS}(on)2$	I_D=1A, V_{GS}=2.5V		73	103	mΩ
	$R_{DS}(on)2$	I_D=0.5A, V_{GS}=1.8V		104	156	mΩ
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		260		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		65		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		50		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		6.2		ns
Rise Time	t_r	See specified Test Circuit.		19		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		30		ns
Fall Time	t_f	See specified Test Circuit.		28		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=4.5V, I_D=3.5A		2.8		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=4.5V, I_D=3.5A		0.6		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=10V, V_{GS}=4.5V, I_D=3.5A		0.9		nC
Diode Forward Voltage	V_{SD}	I_S=3.5A, V_{GS}=0V		0.85	1.2	V

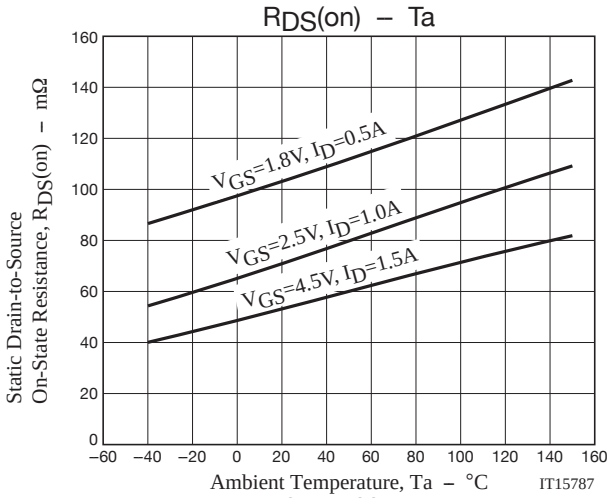
Switching Time Test Circuit

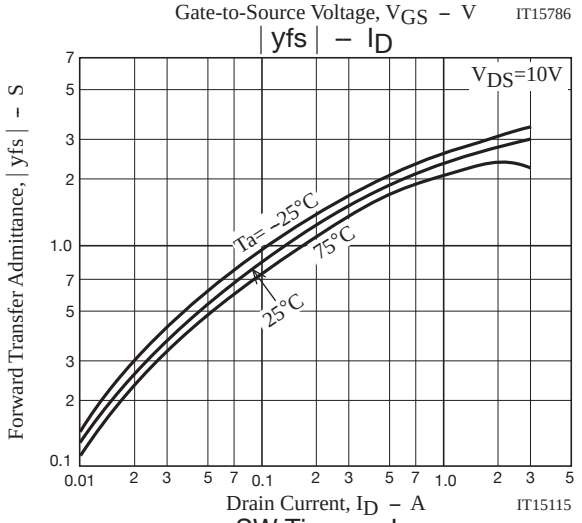


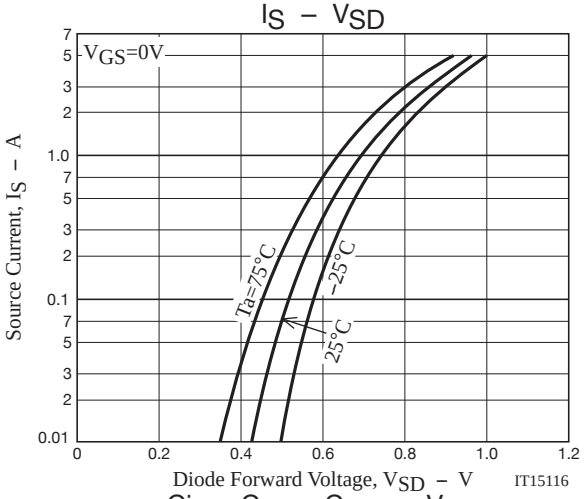


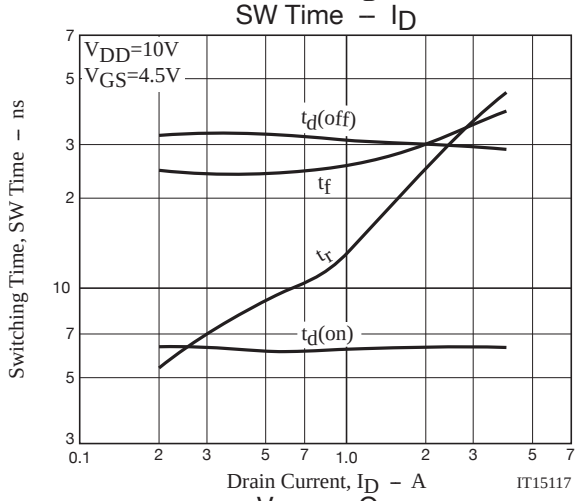


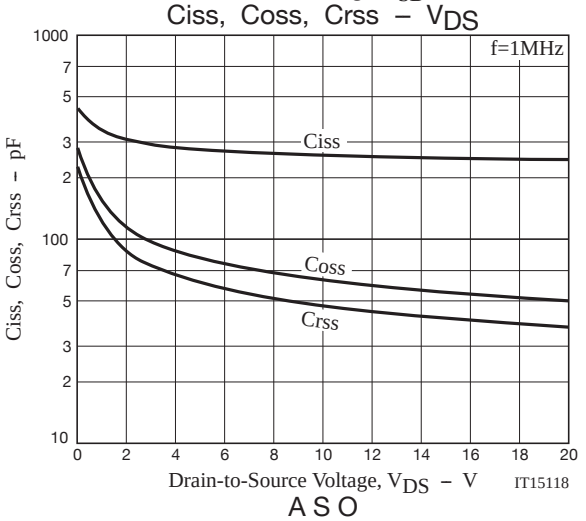

RDS(on) – VGS
Ta=25°C
ID=0.5A
1.0A
1.5A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT15786

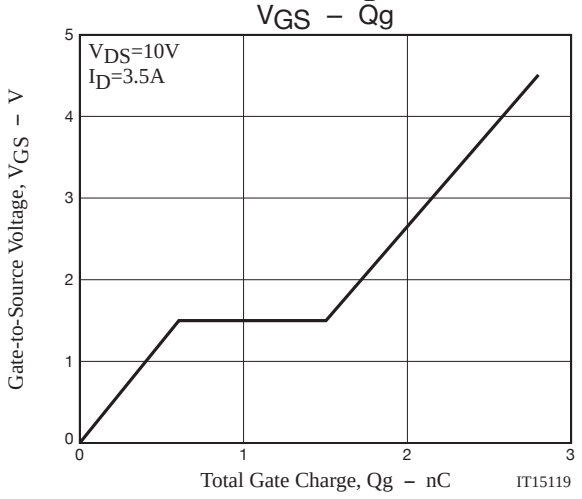

RDS(on) – Ta
VGS=1.8V, ID=0.5A
VGS=2.5V, ID=1.0A
VGS=4.5V, ID=1.5A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Ambient Temperature, Ta – °C
IT15787

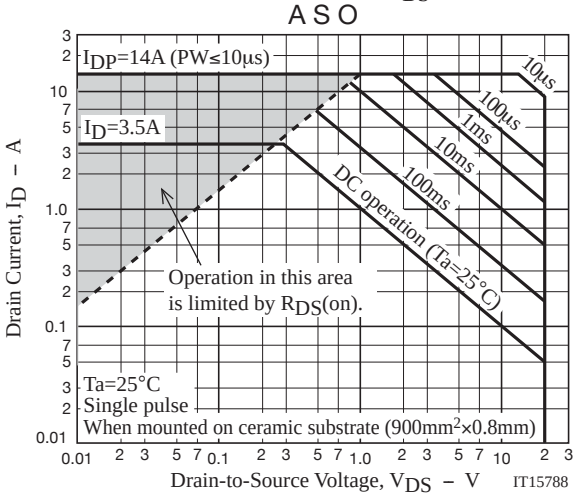

| yfs | – ID
VDS=10V
Ta= –25°C
75°C
25°C
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT15115

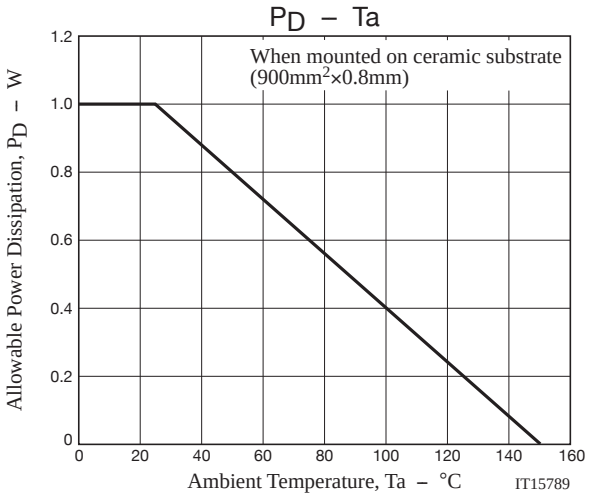

IS – VSD
VGS=0V
Ta=75°C
–25°C
25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT15116


SW Time – ID
VDD=10V
VGS=4.5V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT15117


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT15118


VGS – Qg
VDS=10V
ID=3.5A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT15119


A S O
IDP=14A (PW≤10μs)
ID=3.5A
10μs
100μs
1ms
10ms
100ms
DC operation (Ta=25°C)
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
IT15788



Note on usage : Since the CPH3456 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

This catalog provides information as of September, 2010. Specifications and information herein are subject to change without notice.