CPH6355

Power MOSFET
–30V, 169mΩ, –3A, Single P-Channel

ON Semiconductor®

www.onsemi.com

V_{DSS}	R_{DS}(on) Max	I_D Max
–30V	169mΩ@ –10V	–3A
	276mΩ@ –4.5V	
	313mΩ@ –4V	

Features

- Low ON-Resistance
- 4V Drive
- Pb-Free, Halogen Free and RoHS Compliance

Specifications

Absolute Maximum Ratings at Ta = 25°C

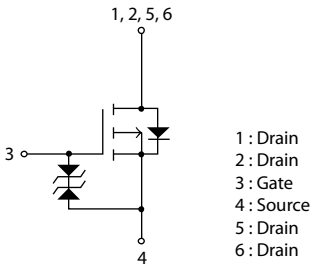
Parameter	Symbol	Value	Unit
Drain to Source Voltage	V_{DSS}	–30	V
Gate to Source Voltage	V_{GSS}	±20	V
Drain Current (DC)	I_D	–3	A
Drain Current (Pulse) PW≤10μs, duty cycle≤1%	I_{DP}	–12	A
Power Dissipation When mounted on ceramic substrate (1500mm^2 × 0.8mm)	P_D	1.6	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	–55 to +150	°C

This product is designed to "ESD immunity < 200V*", so please take care when handling.
* Machine Model

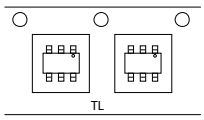
Thermal Resistance Ratings

Parameter	Symbol	Value	Unit
Junction to Ambient When mounted on ceramic substrate (1500mm^2 × 0.8mm)	$R_{\theta JA}$	78.1	°C/W

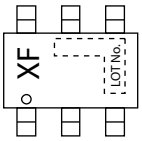
Electrical Connection
P-Channel



Packing Type : TL



Marking



Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

ORDERING INFORMATION
See detailed ordering and shipping information on page 5 of this data sheet.

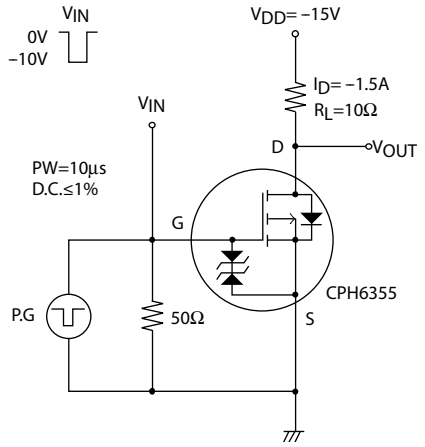
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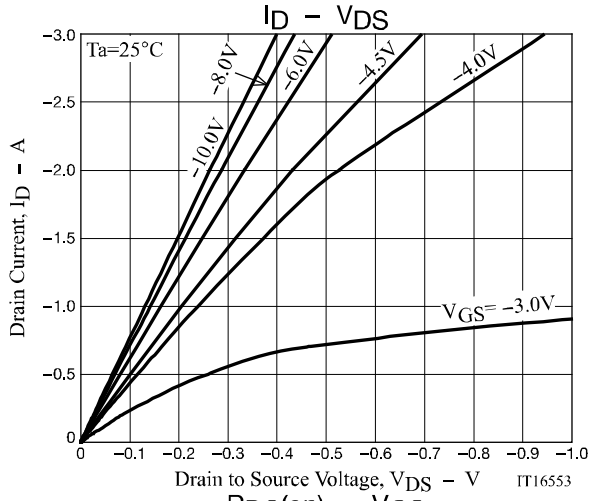
Electrical Characteristics at Ta = 25°C

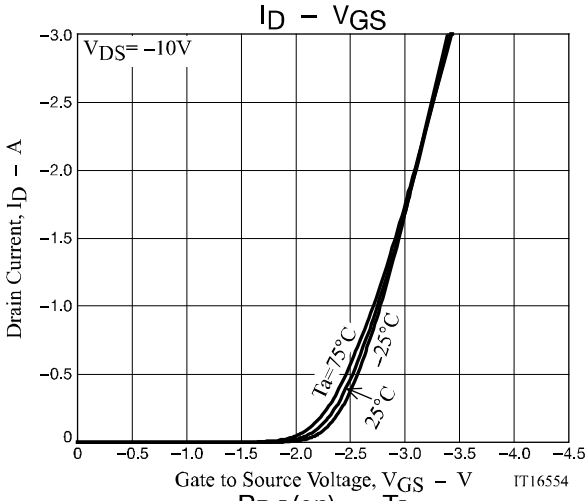
Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=–1mA, V_{GS}=0V	–30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=–30V, V_{GS}=0V			–1	μA
Gate to Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0V			±10	μA
Gate Threshold Voltage	$V_{GS}(th)$	V_{DS}=–10V, I_D=–1mA	–1.2		–2.6	V
Forward Transconductance	g_{FS}	V_{DS}=–10V, I_D=–1.5A		2.3		S
Static Drain to Source On-State Resistance	$R_{DS}(on)1$	I_D=–1.5A, V_{GS}=–10V		130	169	mΩ
	$R_{DS}(on)2$	I_D=–0.5A, V_{GS}=–4.5V		197	276	mΩ
	$R_{DS}(on)3$	I_D=–0.5A, V_{GS}=–4V		223	313	mΩ
Input Capacitance	Ciss	V_{DS}=–10V, f=1MHz		172		pF
Output Capacitance	Coss			51		pF
Reverse Transfer Capacitance	Crss			36		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit		4.6		ns
Rise Time	t_r			6.6		ns
Turn-OFF Delay Time	$t_d(off)$			19.4		ns
Fall Time	t_f			11.4		ns
Total Gate Charge	Qg	V_{DS}=–15V, V_{GS}=–10V, I_D=–3A		3.9		nC
Gate to Source Charge	Qgs			0.6		nC
Gate to Drain “Miller” Charge	Qgd			0.8		nC
Forward Diode Voltage	V_{SD}	I_S=–3A, V_{GS}=0V		–0.95	–1.5	V

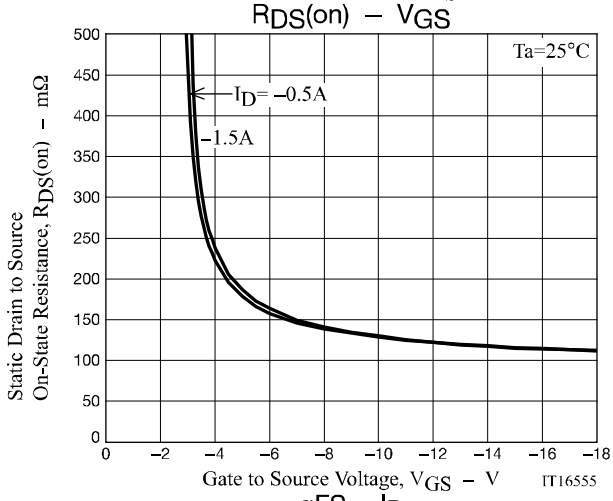
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

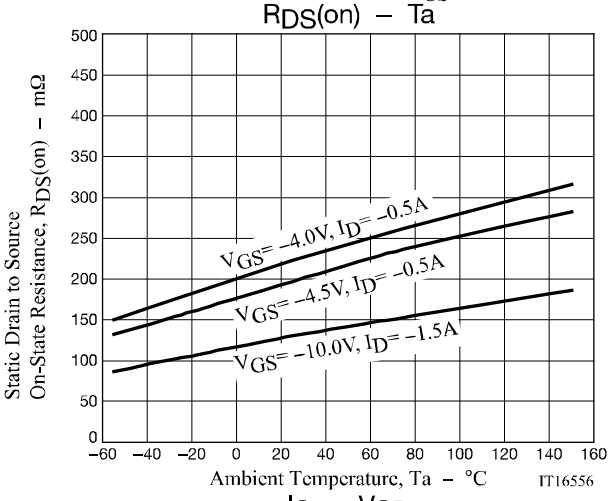
Switching Time Test Circuit

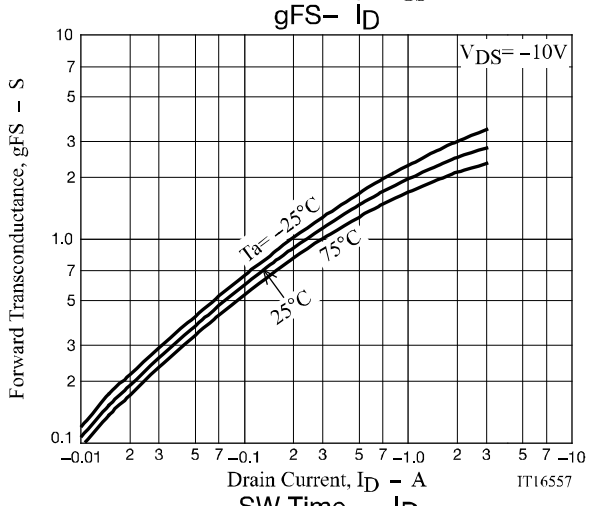


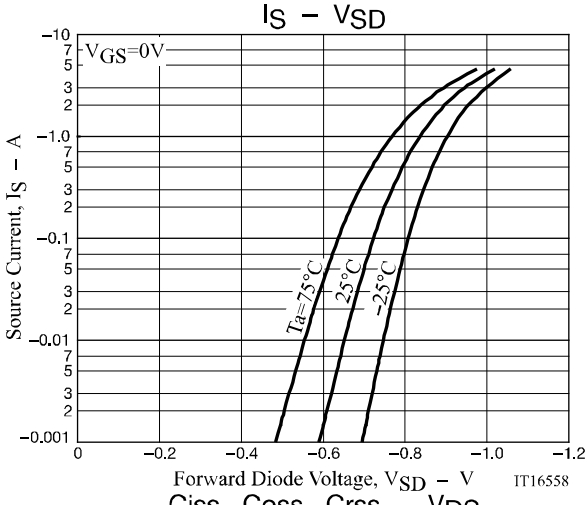

ID – VDS
Ta=25°C
–8.0V
–6.0V
–4.5V
–4.0V
–10.0V
VGS= –3.0V
Drain Current, ID – A
Drain to Source Voltage, VDS – V
IT16553

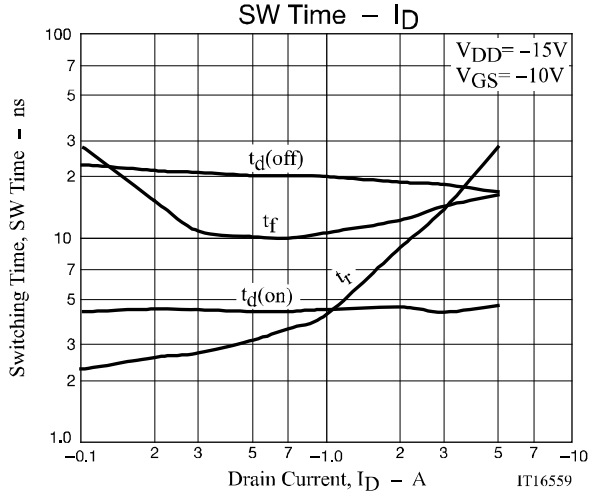

ID – VGS
VDS= –10V
Ta=75°C
–25°C
25°C
Drain Current, ID – A
Gate to Source Voltage, VGS – V
IT16554

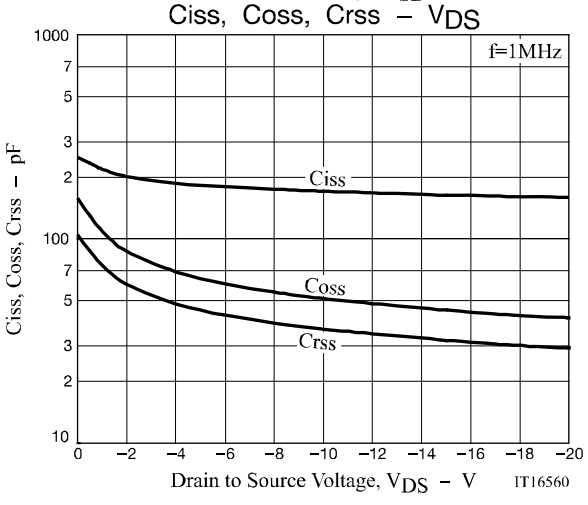

RDS(on) – VGS
Ta=25°C
ID= –0.5A
–1.5A
Static Drain to Source On-State Resistance, RDS(on) – mΩ
Gate to Source Voltage, VGS – V
IT16555

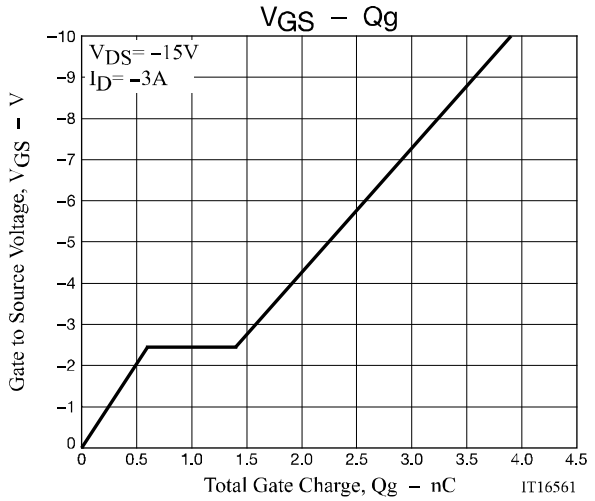

RDS(on) – Ta
VGS= –4.0V, ID= –0.5A
VGS= –4.5V, ID= –0.5A
VGS= –10.0V, ID= –1.5A
Static Drain to Source On-State Resistance, RDS(on) – mΩ
Ambient Temperature, Ta – °C
IT16556

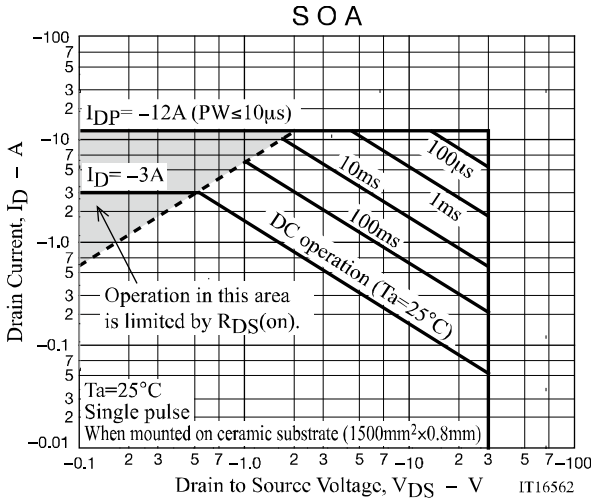

gFS– ID
VDS= –10V
Ta= –25°C
75°C
25°C
Forward Transconductance, gFS – S
Drain Current, ID – A
IT16557

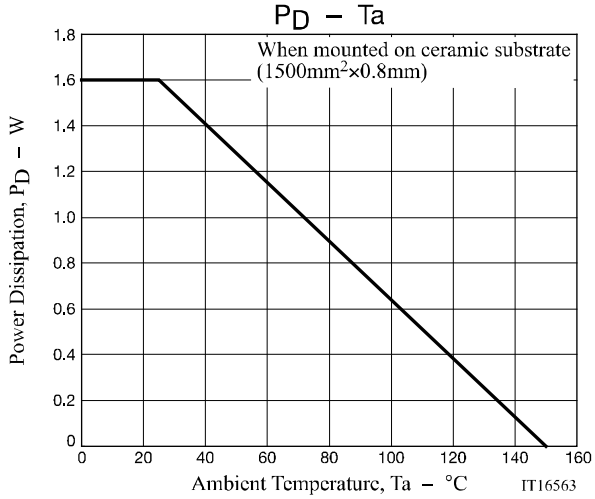

IS – VSD
VGS=0V
Ta=75°C
25°C
–25°C
Source Current, IS – A
Forward Diode Voltage, VSD – V
IT16558

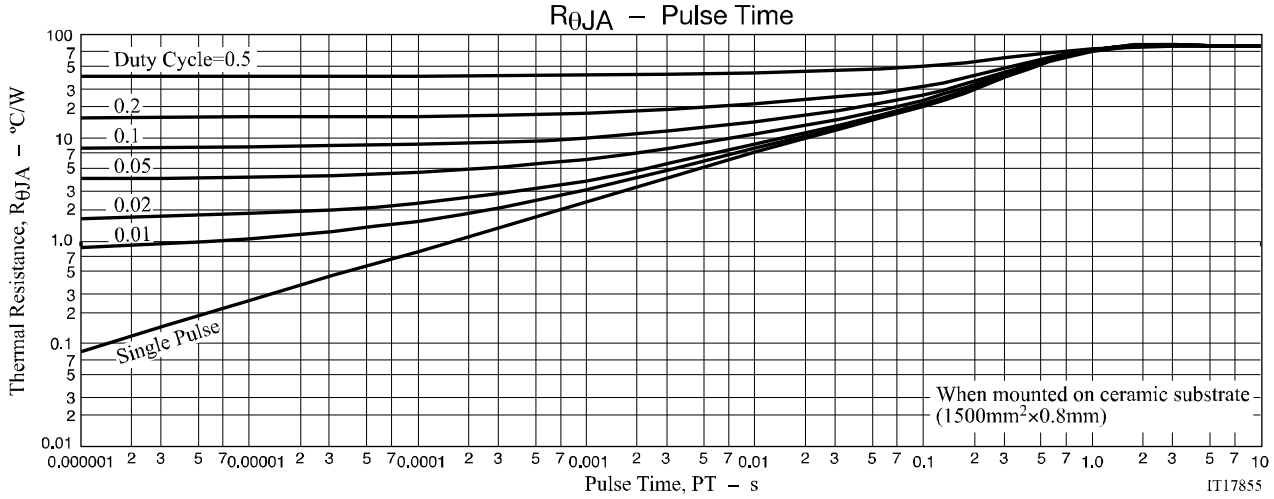

SW Time – ID
VDD= –15V
VGS= –10V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT16559


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain to Source Voltage, VDS – V
IT16560


VGS – Qg
VDS= –15V
ID= –3A
Gate to Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT16561


S O A
IDP= –12A (PW≤10μs)
ID= –3A
100μs
10ms
1ms
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 (1500mm²×0.8mm)
Drain Current, ID – A
Drain to Source Voltage, VDS – V
IT16562


PD – Ta
When mounted on ceramic substrate
(1500mm²×0.8mm)
Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT16563


RθJA – Pulse Time
Duty Cycle=0.5
0.2
0.1
0.05
0.02
0.01
Single Pulse
When mounted on ceramic substrate
(1500mm²×0.8mm)
Thermal Resistance, RθJA – °C/W
Pulse Time, PT – s
IT17855

Package Dimensions

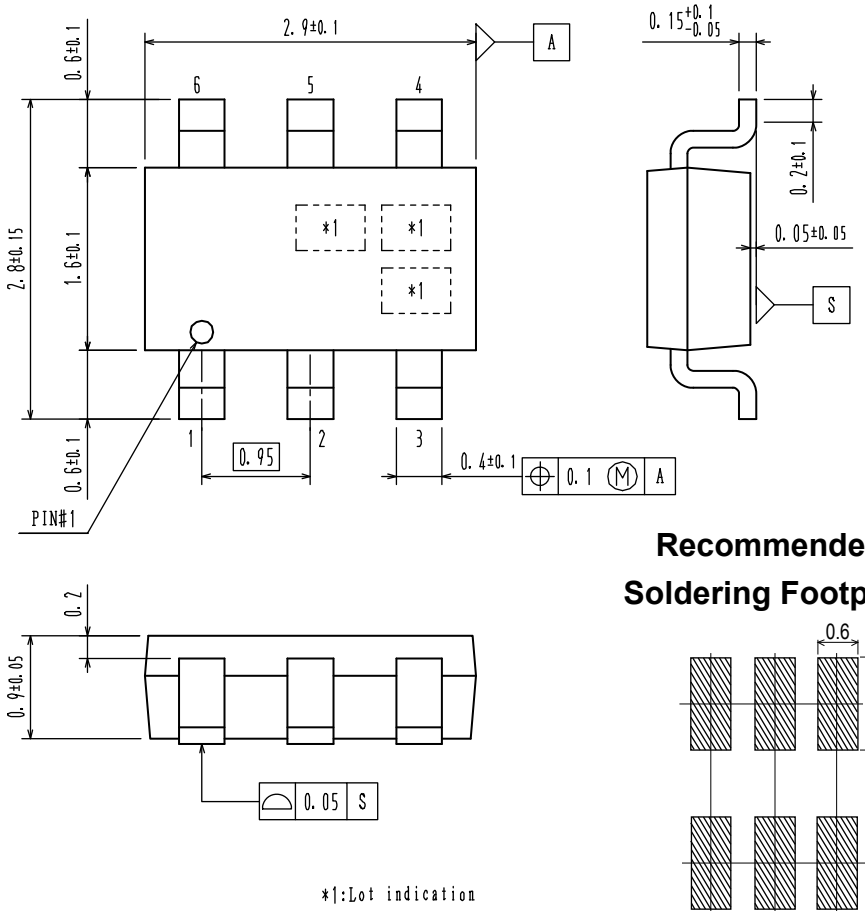
CPH6355-TL-H / CPH6355-TL-W

CPH6

CASE 318BD
ISSUE O

Unit : mm

1 : Drain
2 : Drain
3 : Gate
4 : Source
5 : Drain
6 : Drain



Recommended Soldering Footprint

ORDERING INFORMATION

Device	Package	Shipping	Note
CPH6355-TL-H	CPH6, SC-74 SOT-26, SOT-457	3,000 pcs. / Tape & Reel	Pb-Free and Halogen Free
CPH6355-TL-W			

Note on usage : Since the CPH6355 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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