MCH6662-TL-W Datasheet

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DiGi Electronics Part Number	MCH6662-TL-W-DG
Manufacturer	onsemi
Manufacturer Product Number	MCH6662-TL-W
Description	MOSFET 2N-CH 20V 2A SC88FL
Detailed Description	Mosfet Array 20V 2A 800mW Surface Mount SC-88FL/MCPH6

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RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
MCH6662-TL-W	onsemi
Series:	Product Status:
-	Obsolete
Technology:	Configuration:
MOSFET (Metal Oxide)	2 N-Channel (Dual)
FET Feature:	Drain to Source Voltage (Vdss):
Logic Level Gate, 1.8V Drive	20V
Current - Continuous Drain (Id) @ 25°C:	Rds On (Max) @ Id, Vgs:
2A	160mOhm @ 1A, 4.5V
Vgs(th) (Max) @ Id:	Gate Charge (Qg) (Max) @ Vgs:
1.3V @ 1mA	1.8nC @ 4.5V
Input Capacitance (Ciss) (Max) @ Vds:	Power - Max:
128pF @ 10V	800mW
Operating Temperature:	Mounting Type:
150°C (TJ)	Surface Mount
Package / Case:	Supplier Device Package:
6-TSSOP, SC-88, SOT-363	SC-88FL/MCPH6
Base Product Number:	
MCH6662	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.21.0095	

MCH6662

Power MOSFET
20V, 160mΩ, 2A, Dual N-Channel

ON Semiconductor®

www.onsemi.com

Features

- ON-Resistance Nch : $R_{DS}(on)1$=120mΩ (typ)
- 1.8V Drive
- ESD Diode - Protected Gate
- Pb-Free, Halogen Free and RoHS Compliance

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Value	Unit
Drain-to-Source Voltage	V_{DSS}		20	V
Gate-to-Source Voltage	V_{GSS}		±10	V
Drain Current (DC)	I_D		2.0	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	8.0	A
Power Dissipation	P_D	When mounted on ceramic substrate (900mm²×0.8mm) 1unit	0.8	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

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.

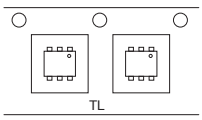
Thermal Resistance Ratings

Parameter	Symbol	Value	Unit
Junction to Ambient When mounted on ceramic substrate (900mm²×0.8mm) 1unit	$R_{\theta JA}$	156.25	°C/W

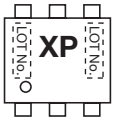
Product & Package Information

- Package : MCPH6
- JEITA, JEDEC : SC-88, SC-70-6, SOT-363
- Minimum Packing Quantity : 3,000 pcs./reel

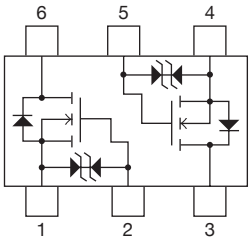
Packing Type : TL



Marking



Electrical Connection



ORDERING INFORMATION

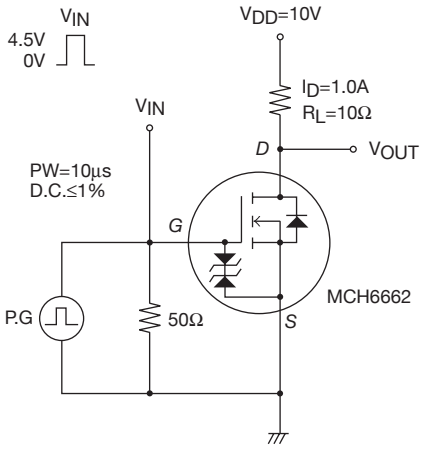
See detailed ordering and shipping information on page 6 of this data sheet.

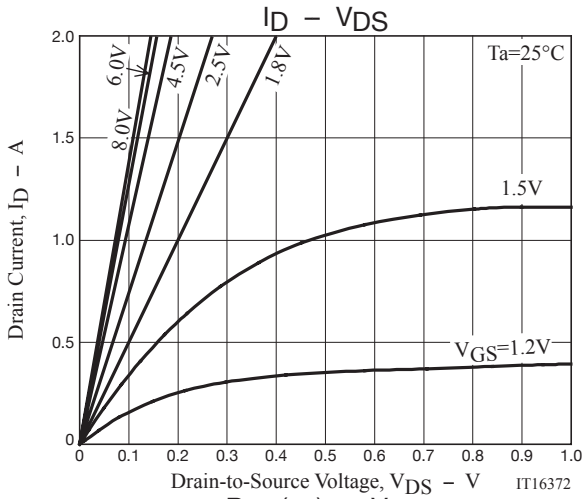
Electrical Characteristics at Ta=25°C

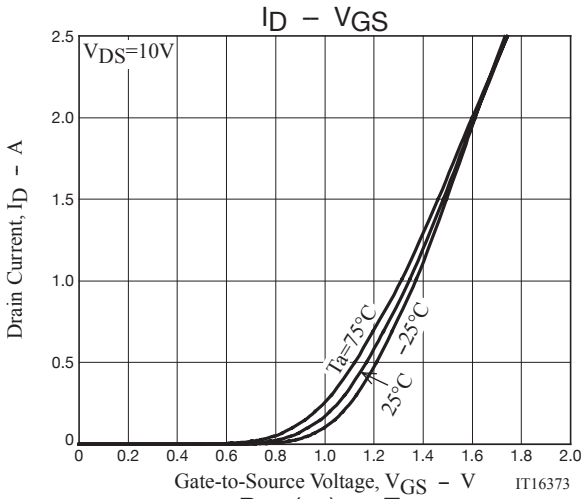
Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0V	20			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V			±10	μA
Gate Threshold Voltage	$V_{GS}(th)$	V_{DS}=10V, I_D=1mA	0.4		1.3	V
Forward Transconductance	g_{FS}	V_{DS}=10V, I_D=1A		1.9		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=1.0A, V_{GS}=4.5V		120	160	mΩ
	$R_{DS}(on)2$	I_D=0.5A, V_{GS}=2.5V		170	240	mΩ
	$R_{DS}(on)3$	I_D=0.1A, V_{GS}=1.8V		255	380	mΩ
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		128		pF
Output Capacitance	Coss			28		pF
Reverse Transfer Capacitance	Crss			21		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		5.1		ns
Rise Time	t_r			11		ns
Turn-OFF Delay Time	$t_d(off)$			14.5		ns
Fall Time	t_f			12		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=4.5V, I_D=2A		1.8		nC
Gate-to-Source Charge	Qgs			0.3		nC
Gate-to-Drain “Miller” Charge	Qgd			0.55		nC
Forward Diode Voltage	V_{SD}	I_S=2A, V_{GS}=0V		0.85	1.2	V

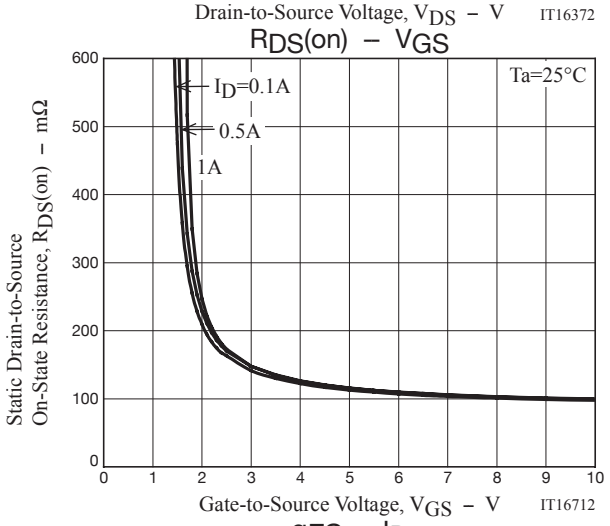
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

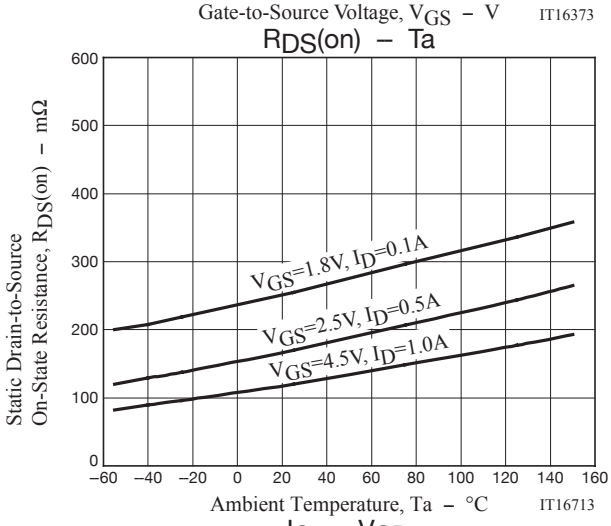
Switching Time Test Circuit

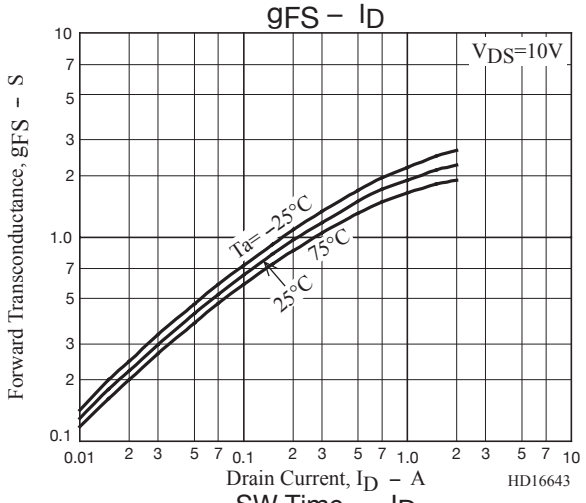


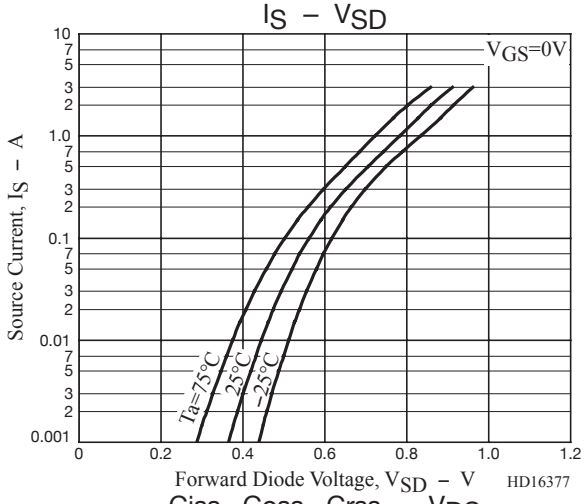

ID – VDS
Ta=25°C
6.0V
4.5V
2.5V
1.8V
8.0V
1.5V
VGS=1.2V
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT16372

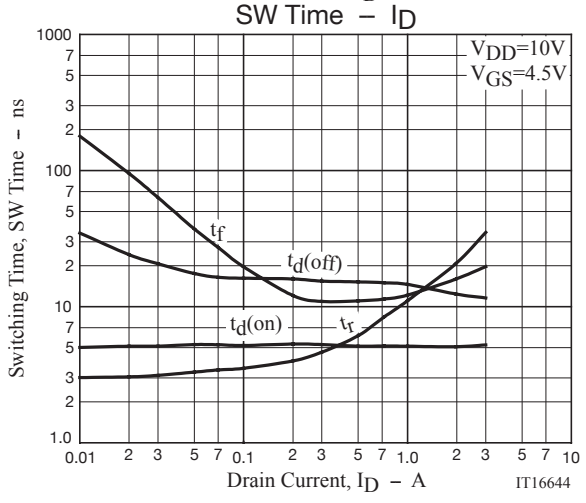

ID – VGS
VDS=10V
Ta=75°C
–25°C
25°C
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
IT16373

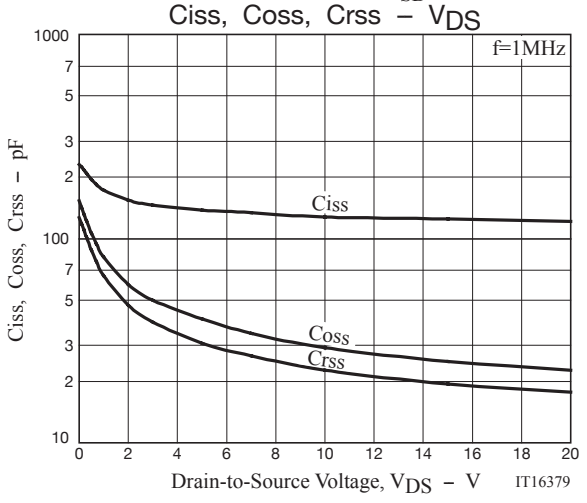

RDS(on) – VGS
Ta=25°C
ID=0.1A
0.5A
1A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT16712

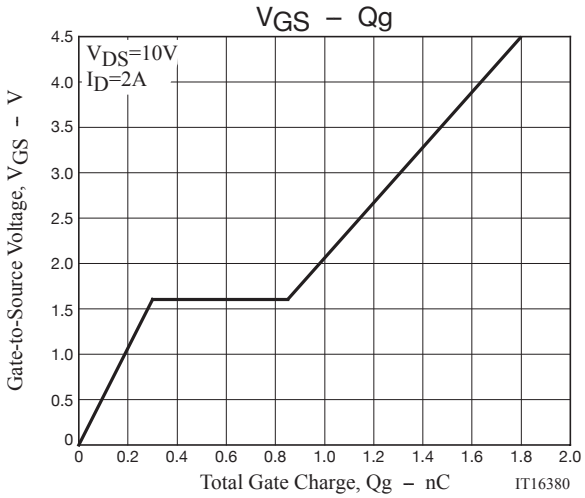

RDS(on) – Ta
VGS=1.8V, ID=0.1A
VGS=2.5V, ID=0.5A
VGS=4.5V, ID=1.0A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Ambient Temperature, Ta – °C
IT16713

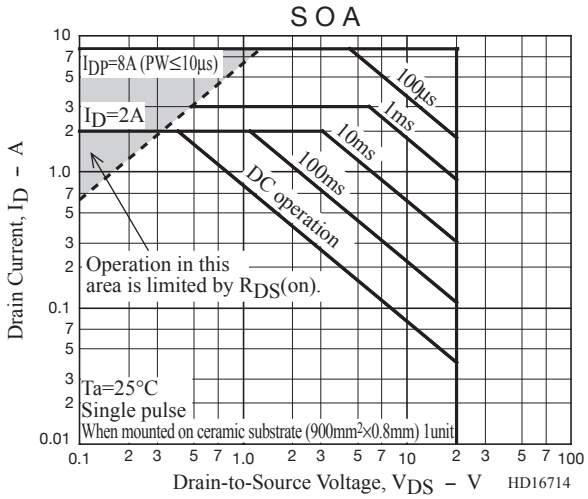

gFS – ID
VDS=10V
Ta= –25°C
75°C
25°C
Forward Transconductance, gFS – S
Drain Current, ID – A
HD16643

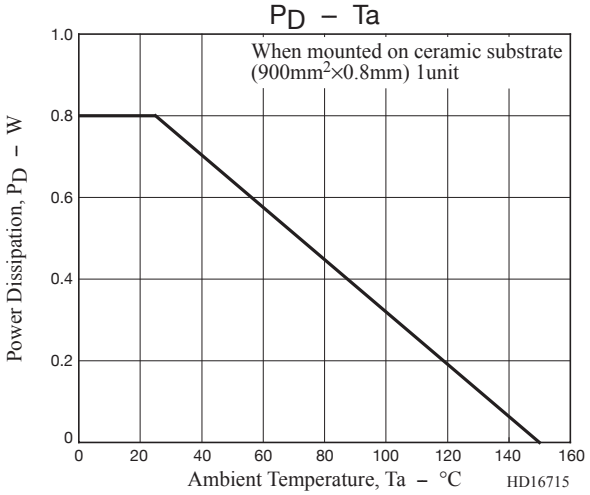

IS – VSD
VGS=0V
Ta=75°C
25°C
–25°C
Source Current, IS – A
Forward Diode Voltage, VSD – V
HD16377

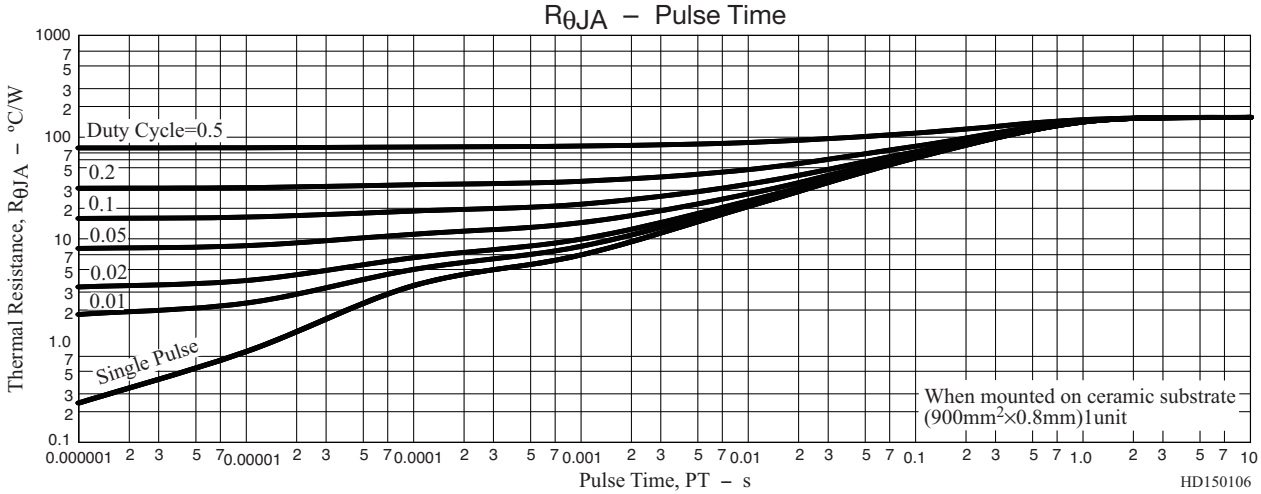

SW Time – ID
VDD=10V
VGS=4.5V
tf
td(off)
td(on)
tr
Switching Time, SW Time – ns
Drain Current, ID – A
IT16644


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT16379


VGS – Qg
VDS=10V
ID=2A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT16380


S O A
IDP=8A (PW≤10μs)
ID=2A
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) 1unit
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
HD16714


PD – Ta
When mounted on ceramic substrate (900mm2×0.8mm) 1unit
Power Dissipation, PD – W
Ambient Temperature, Ta – °C
HD16715

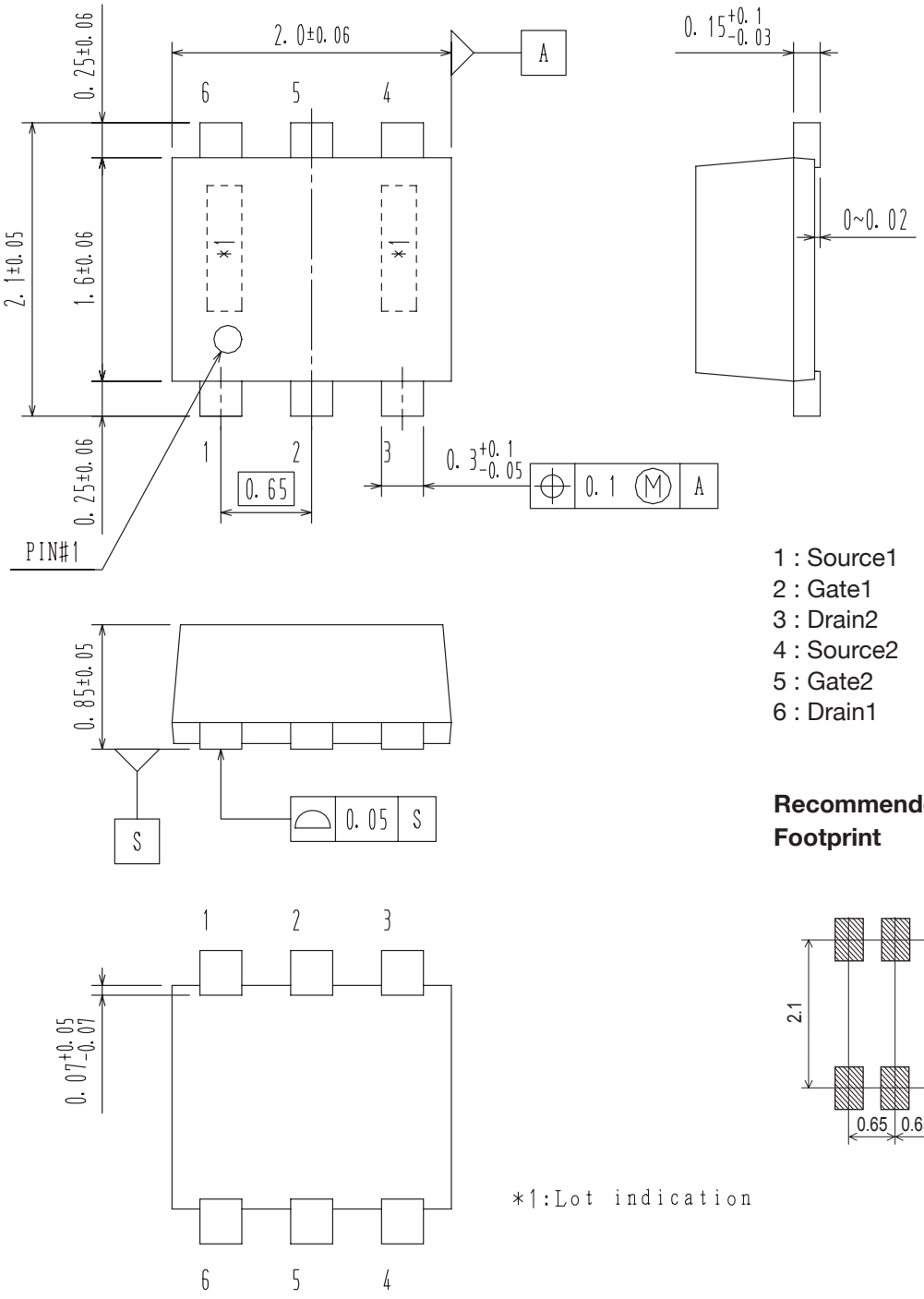

RθJA – Pulse Time
Duty Cycle=0.5
0.2
0.1
0.05
0.02
0.01
Single Pulse
When mounted on ceramic substrate (900mm2×0.8mm)1unit
Thermal Resistance, RθJA – °C/W
Pulse Time, PT – s
HD150106

Package Dimensions

unit : mm

MCH6662-TL-H, MCH6662-TL-W

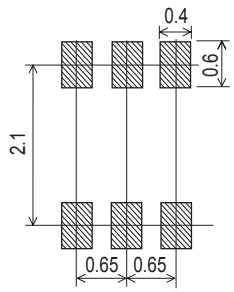
SC-88FL / MCPH6
CASE 419AS
ISSUE O



1 : Source1
2 : Gate1
3 : Drain2
4 : Source2
5 : Gate2
6 : Drain1

*1:Lot indication

Recommended Soldering Footprint



ORDERING INFORMATION

Device	Package	Shipping	memo
MCH6662-TL-H	MCPH6	3,000pcs./reel	Pb-Free and Halogen Free
MCH6662-TL-W			

Note on usage : Since the MCH6662 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

OUR CERTIFICATE

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