3LP01M-TL-E Datasheet

https://www.DiGi-Electronics.com

DiGi Electronics Part Number	3LP01M-TL-E-DG
Manufacturer	onsemi
Manufacturer Product Number	3LP01M-TL-E
Description	MOSFET P-CH 30V 100MA 3MCP
Detailed Description	P-Channel 30 V 100mA (Ta) 150mW (Ta) Surface Mount MCP

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
3LP01M-TL-E	onsemi
Series:	Product Status:
-	Obsolete
FET Type:	Technology:
P-Channel	MOSFET (Metal Oxide)
Drain to Source Voltage (Vdss):	Current - Continuous Drain (Id) @ 25°C:
30 V	100mA (Ta)
Drive Voltage (Max Rds On, Min Rds On):	Rds On (Max) @ Id, Vgs:
1.5V, 4V	10.4Ohm @ 50mA, 4V
Vgs(th) (Max) @ Id:	Gate Charge (Qg) (Max) @ Vgs:
-	1.43 nC @ 10 V
Vgs (Max):	Input Capacitance (Ciss) (Max) @ Vds:
±10V	7.5 pF @ 10 V
FET Feature:	Power Dissipation (Max):
-	150mW (Ta)
Operating Temperature:	Mounting Type:
150°C (TJ)	Surface Mount
Supplier Device Package:	Package / Case:
MCP	SC-70, SOT-323
Base Product Number:	
3LP01	

Environmental & Export classification

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

Ordering number : EN6139D

3LP01M

P-Channel Small Signal MOSFET
−30V, −0.1A, 10.4Ω, Single MCP

ON Semiconductor®

http://onsemi.com

Features

- Low ON-resistance
- High-speed switching
- 2.5V drive

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain to Source Voltage	V_{DSS}		−30	V
Gate to Source Voltage	V_{GSS}		±10	V
Drain Current (DC)	I_D		−0.1	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	−0.4	A
Allowable Power Dissipation	P_D		0.15	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C

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

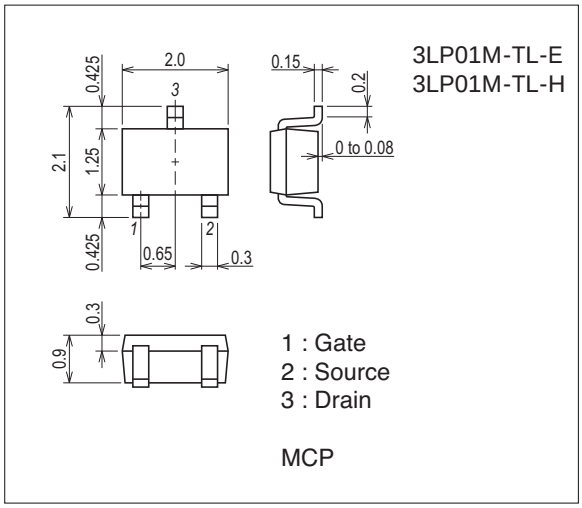
* Machine Model

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

unit : mm (typ)

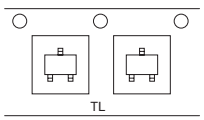
7023A-010



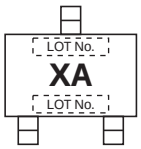
Ordering & Package Information

Device	Package	Shipping	memo
3LP01M-TL-E	MCP SC-70,TO-323	3,000 pcs./reel	Pb-Free
3LP01M-TL-H	MCP SC-70,TO-323	3,000 pcs./reel	Pb-Free and Halogen Free

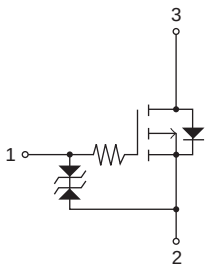
Packing Type: TL



Marking



Electrical Connection

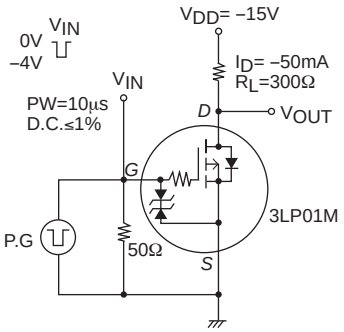


3LP01M

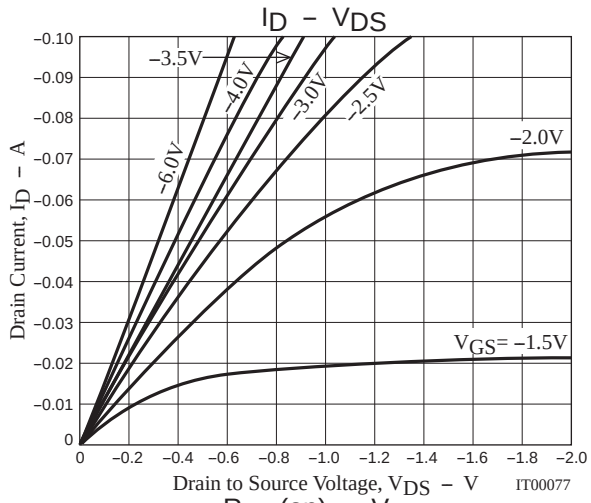
Electrical Characteristics at Ta=25°C

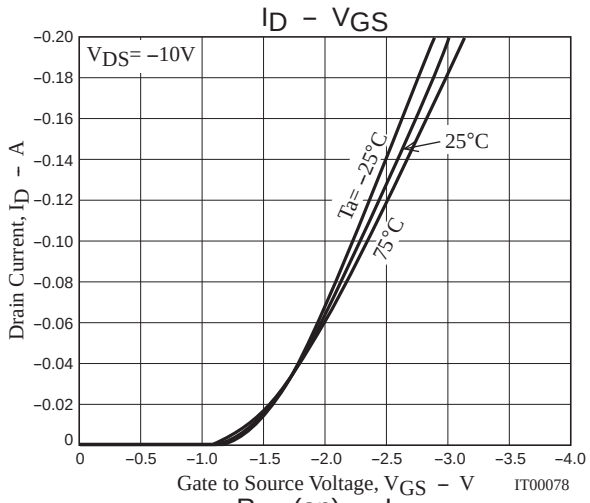
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	I_D= −1mA, V_{GS}=0V	−30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}= −30V, V_{GS}=0V			−1	μA
Gate to Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}= −10V, I_D= −100μA	−0.4		−1.4	V
Forward Transfer Admittance	| yfs |	V_{DS}= −10V, I_D= −50mA	80	110		mS
Static Drain to Source On-State Resistance	R_{DS}(on)1	I_D= −50mA, V_{GS}= −4V		8	10.4	Ω
	R_{DS}(on)2	I_D= −30mA, V_{GS}= −2.5V		11	15.4	Ω
	R_{DS}(on)3	I_D= −1mA, V_{GS}= −1.5V		27	54	Ω
Input Capacitance	Ciss	V_{DS}= −10V, f=1MHz		7.5		pF
Output Capacitance	Coss			5.7		pF
Reverse Transfer Capacitance	Crss			1.8		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		24		ns
Rise Time	t_r			55		ns
Turn-OFF Delay Time	t_{d}(off)			120		ns
Fall Time	t_f			130		ns
Total Gate Charge	Qg	V_{DS}= −10V, V_{GS}= −10V, I_D= −100mA		1.43		nC
Gate to Source Charge	Qgs			0.18		nC
Gate to Drain “Miller” Charge	Qgd			0.25		nC
Diode Forward Voltage	V_{SD}	I_S= −100mA, V_{GS}=0V		−0.83	−1.2	V

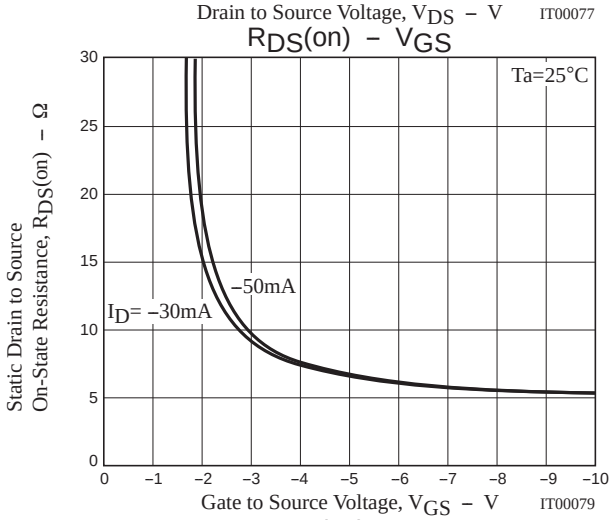
Switching Time Test Circuit

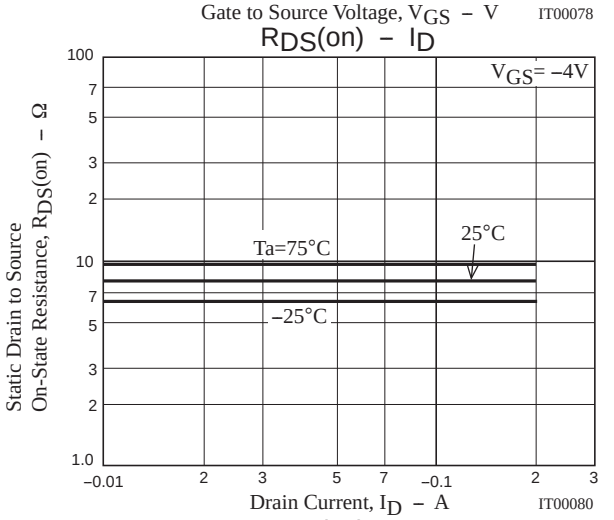


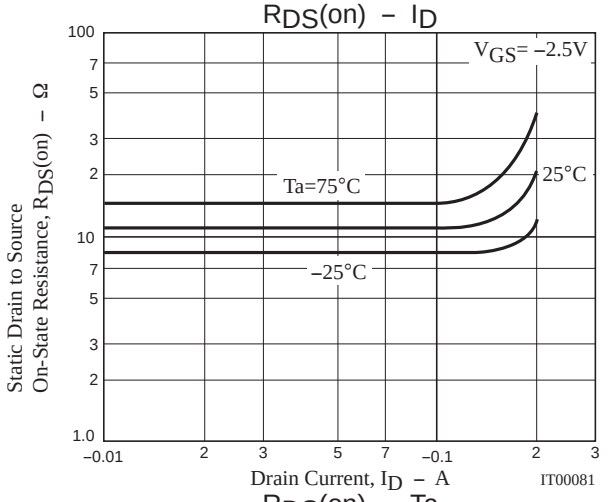
3LP01M

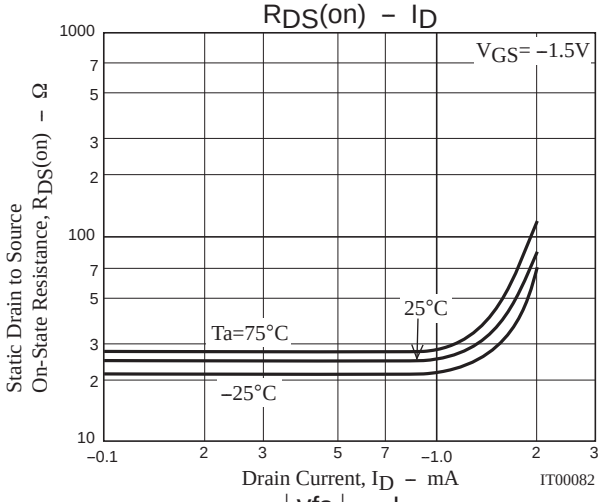

ID – VDS
Drain Current, ID – A
Drain to Source Voltage, VDS – V
–3.5V
–4.0V
–3.0V
–2.5V
–6.0V
–2.0V
VGS= –1.5V
IT00077

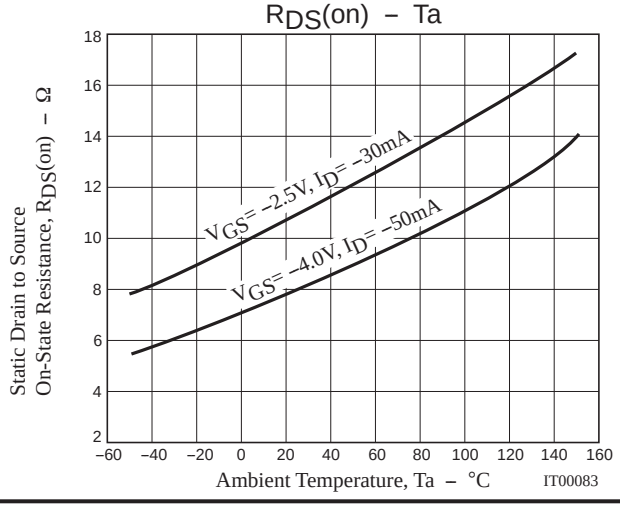

ID – VGS
Drain Current, ID – A
Gate to Source Voltage, VGS – V
VDS= –10V
25°C
Ta= –25°C
75°C
IT00078

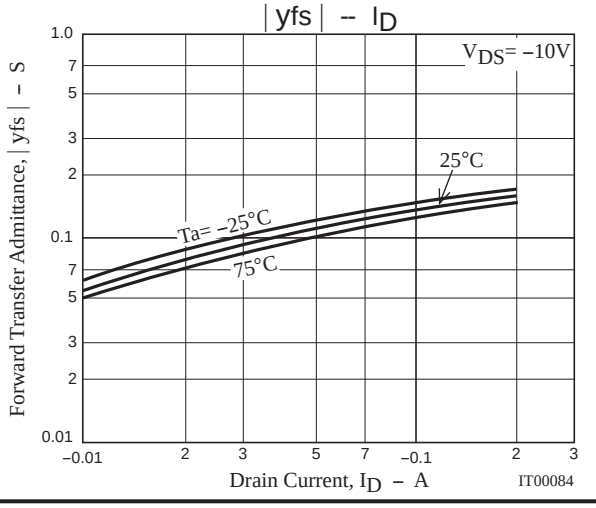

RDS(on) – VGS
Static Drain to Source On-State Resistance, RDS(on) – Ω
Gate to Source Voltage, VGS – V
Ta=25°C
–50mA
ID= –30mA
IT00079


RDS(on) – ID
Static Drain to Source On-State Resistance, RDS(on) – Ω
Drain Current, ID – A
VGS= –4V
Ta=75°C
25°C
–25°C
IT00080

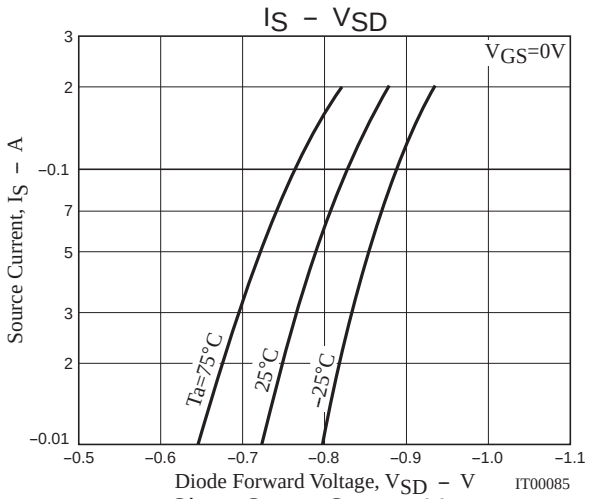

RDS(on) – ID
Static Drain to Source On-State Resistance, RDS(on) – Ω
Drain Current, ID – A
VGS= –2.5V
Ta=75°C
25°C
–25°C
IT00081

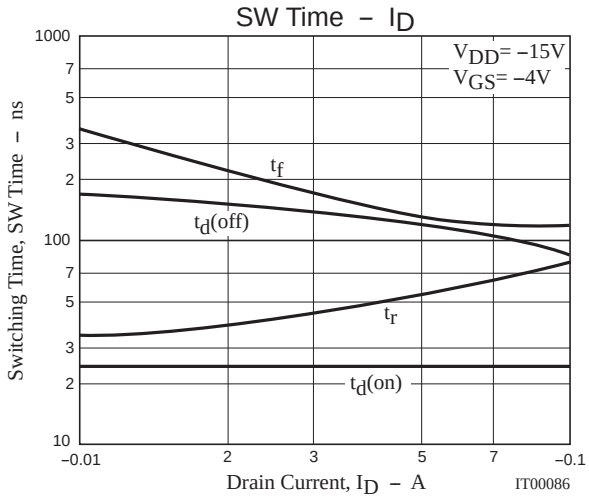

RDS(on) – ID
Static Drain to Source On-State Resistance, RDS(on) – Ω
Drain Current, ID – mA
VGS= –1.5V
25°C
Ta=75°C
–25°C
IT00082

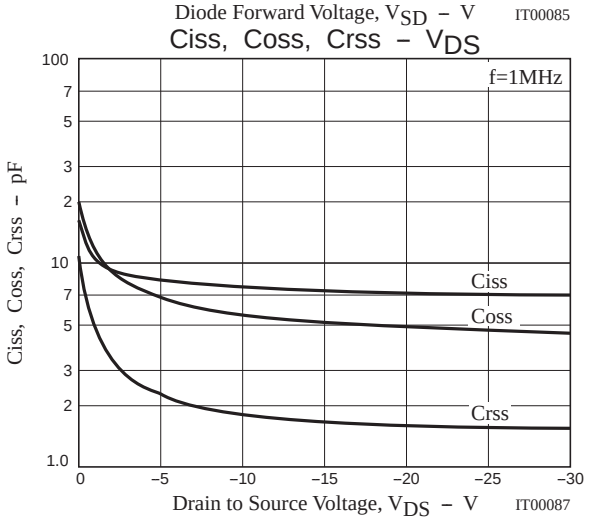

RDS(on) – Ta
Static Drain to Source On-State Resistance, RDS(on) – Ω
Ambient Temperature, Ta – °C
VGS= –2.5V, ID= –30mA
VGS= –4.0V, ID= –50mA
IT00083

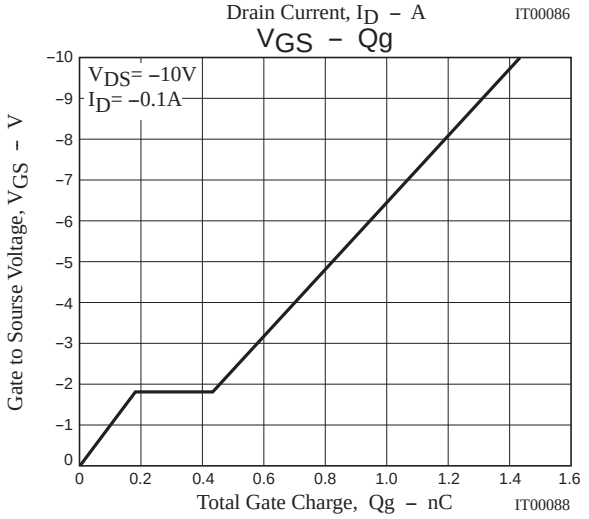

| yfs | – ID
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
VDS= –10V
25°C
Ta= –25°C
75°C
IT00084

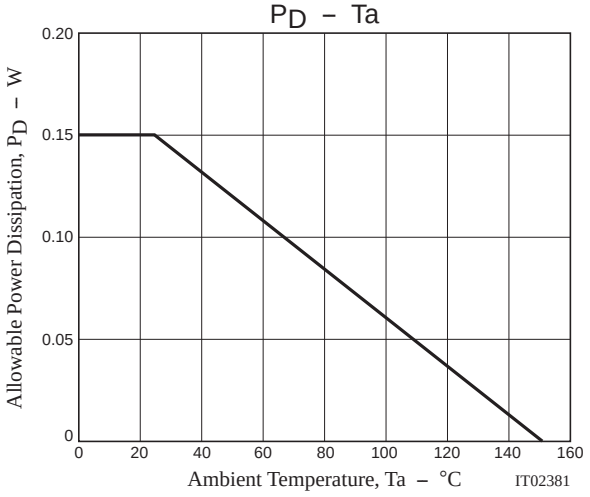
3LP01M


IS – VSD
VGS=0V
Source Current, IS – A
Ta=75°C
25°C
–25°C
Diode Forward Voltage, VSD – V
IT00085


SW Time – ID
VDD= –15V
VGS= –4V
Switching Time, SW Time – ns
tf
td(off)
tr
td(on)
Drain Current, ID – A
IT00086


Ciss, Coss, Crss – VDS
f=1MHz
Ciss, Coss, Crss – pF
Ciss
Coss
Crss
Drain to Source Voltage, VDS – V
IT00087

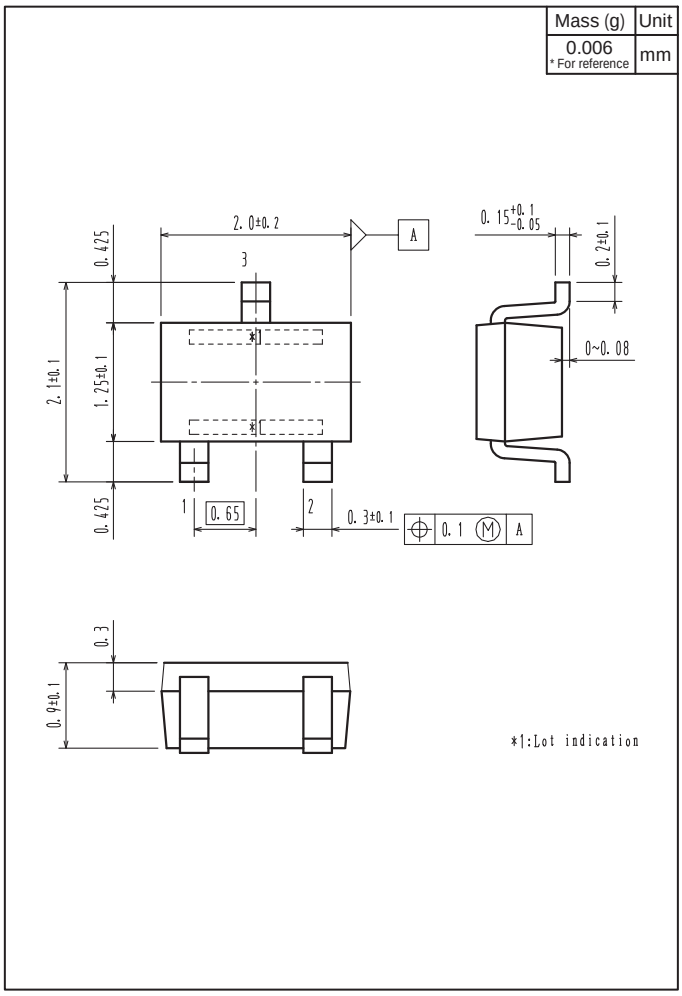

VGS – Qg
VDS= –10V
ID= –0.1A
Gate to Sourse Voltage, VGS – V
Total Gate Charge, Qg – nC
IT00088


PD – Ta
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT02381

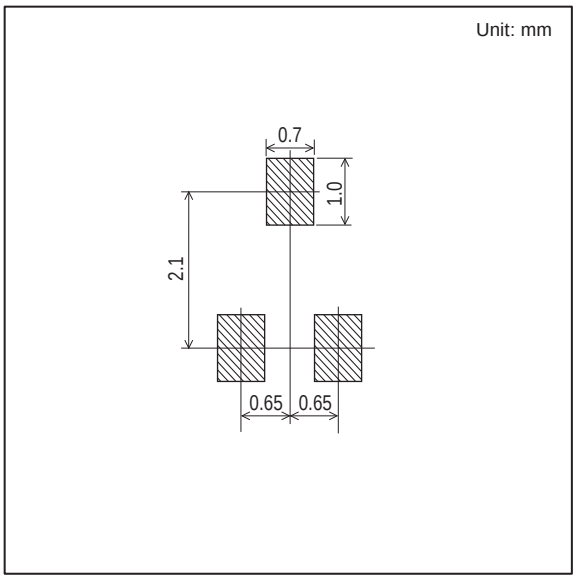
3LP01M

Outline Drawing

3LP01M-TL-E, 3LP01M-TL-H



Land Pattern Example



Note on usage : Since the 3LP01M is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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