



SANYO Semiconductors

## DATA SHEET

An ON Semiconductor Company

P-Channel Silicon MOSFET

# MCH6321 — General-Purpose Switching Device Applications

## Features

- 1.8V drive
- Protection diode in

## Specifications

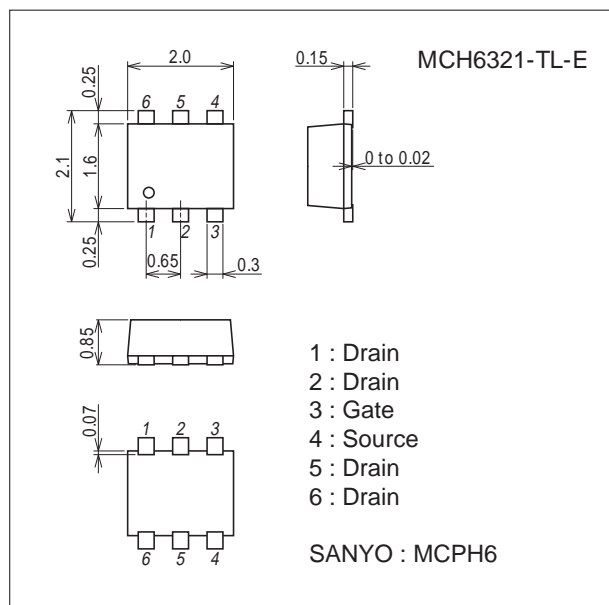
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		-20	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±10	V
Drain Current (DC)	I <sub>D</sub>		-4	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-16	A
Allowable Power Dissipation	P <sub>D</sub>	When mounted on ceramic substrate (1200mm <sup>2</sup> ×0.8mm)	1.5	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

## Package Dimensions

unit : mm (typ)

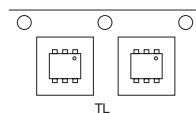
7022A-009



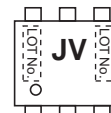
## Product & Package Information

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

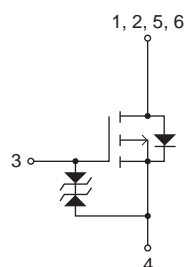
## Packing Type : TL



## Marking



## Electrical Connection

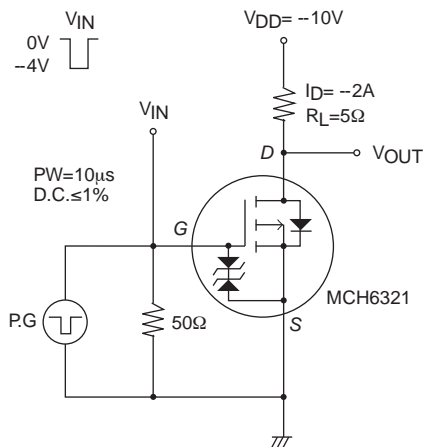


# MCH6321

## Electrical Characteristics at Ta=25°C

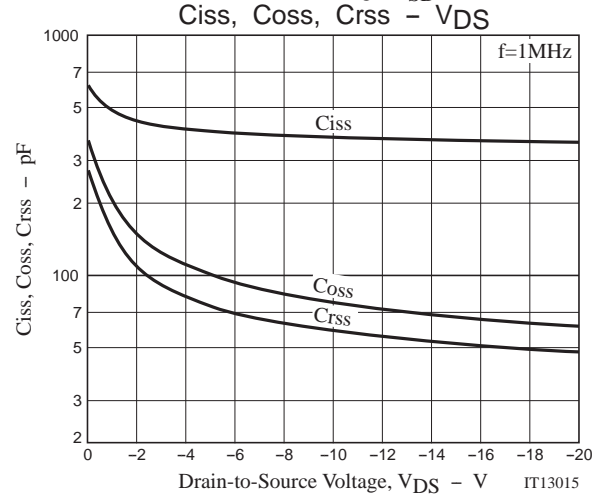
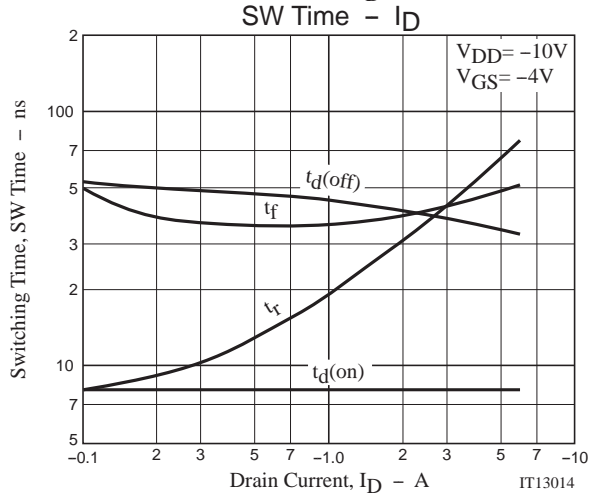
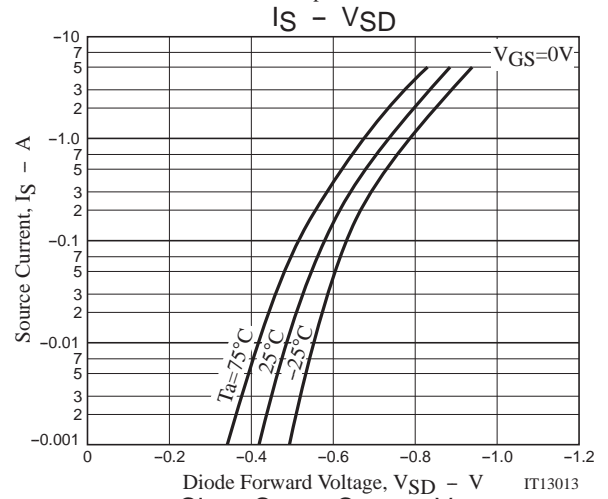
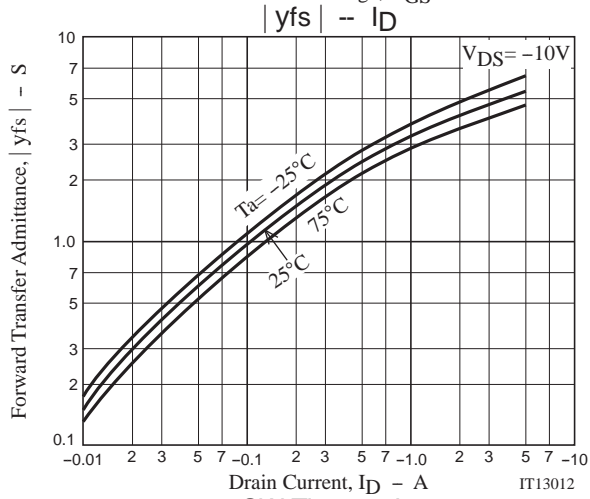
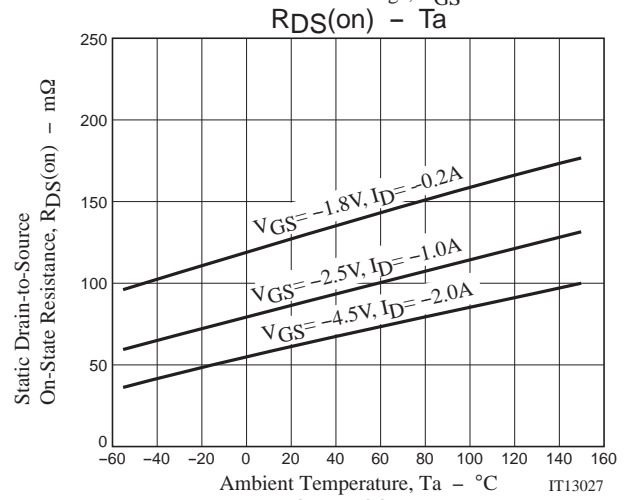
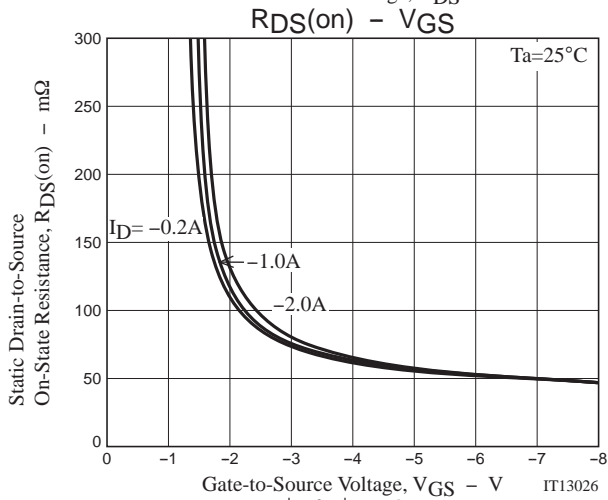
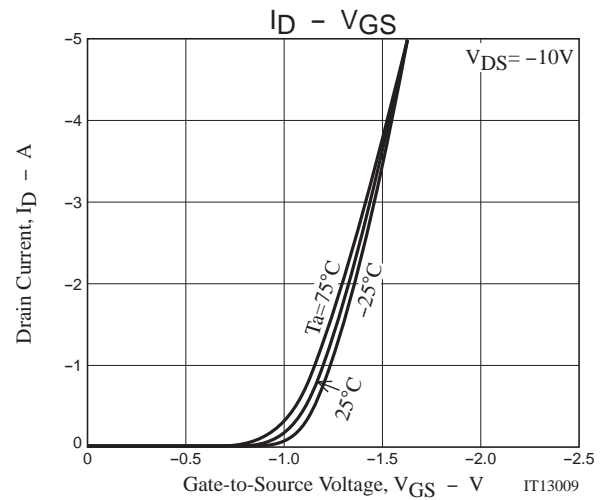
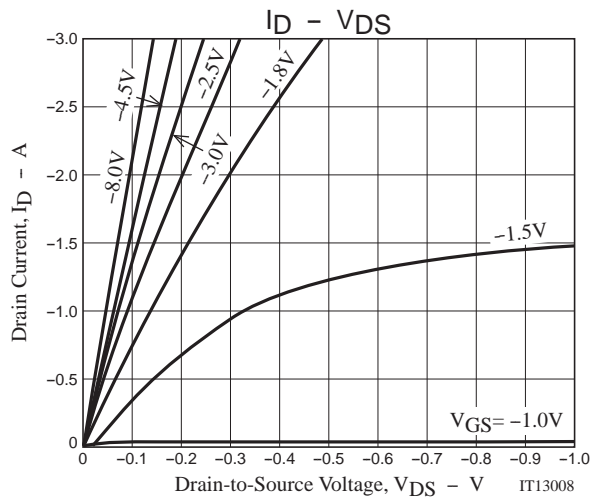
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1\text{mA}$ , $V_{GS} = 0\text{V}$	-20			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -20\text{V}$ , $V_{GS} = 0\text{V}$			-1	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 8\text{V}$ , $V_{DS} = 0\text{V}$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10\text{V}$ , $I_D = -1\text{mA}$	-0.4		-1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10\text{V}$ , $I_D = -2\text{A}$	2.5	4.3		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -2\text{A}$ , $V_{GS} = -4.5\text{V}$		63	83	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D = -1\text{A}$ , $V_{GS} = -2.5\text{V}$		88	125	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D = -0.2\text{A}$ , $V_{GS} = -1.8\text{V}$		130	200	$\text{m}\Omega$
Input Capacitance	$C_{iss}$	$V_{DS} = -10\text{V}$ , $f = 1\text{MHz}$		375		pF
Output Capacitance	$C_{oss}$			77		pF
Reverse Transfer Capacitance	$C_{rss}$			58		pF
Turn-ON Delay Time	$t_d(on)$			8.1		ns
Rise Time	$t_r$	See specified Test Circuit.		31		ns
Turn-OFF Delay Time	$t_d(off)$			40		ns
Fall Time	$t_f$			39		ns
Total Gate Charge	$Q_g$	$V_{DS} = -10\text{V}$ , $V_{GS} = -4.5\text{V}$ , $I_D = -4\text{A}$		4.6		nC
Gate-to-Source Charge	$Q_{gs}$			0.8		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$			1.3		nC
Diode Forward Voltage	$V_{SD}$	$I_S = -4\text{A}$ , $V_{GS} = 0\text{V}$		-0.86	-1.2	V

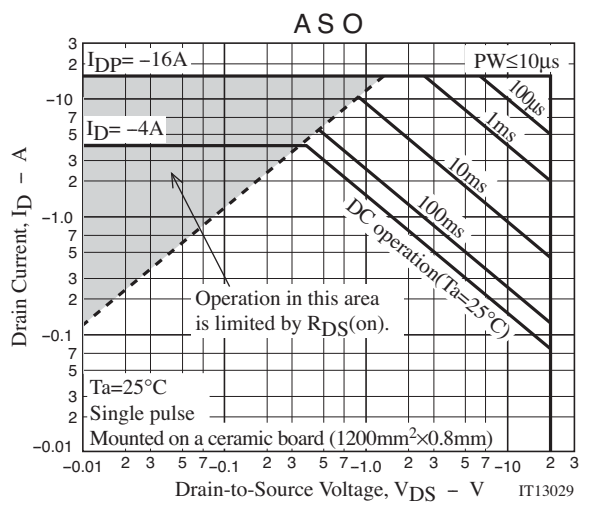
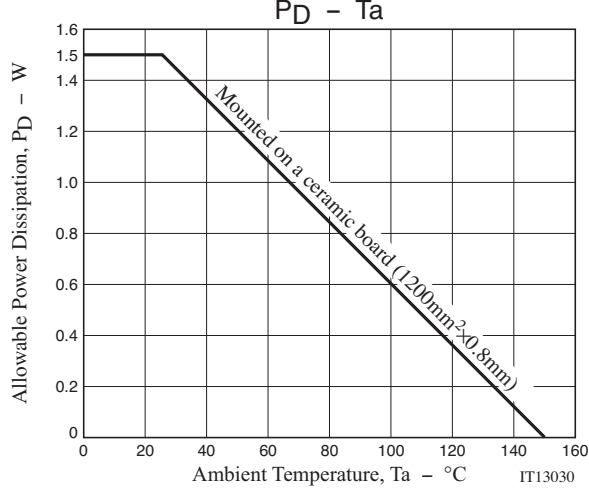
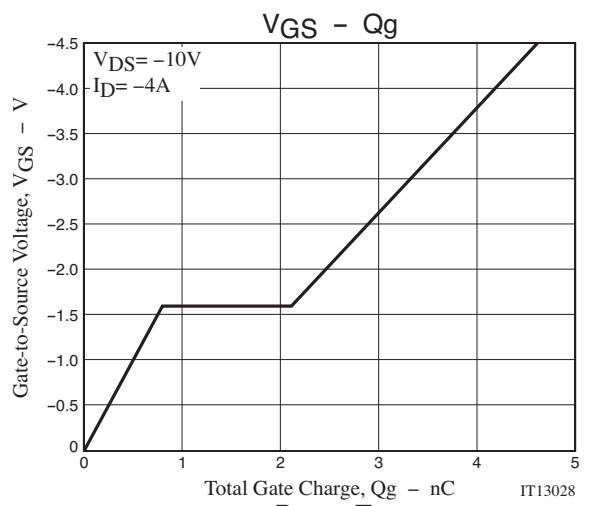
## Switching Time Test Circuit



## Ordering Information

Device	Package	Shipping	memo
MCH6321-TL-E	MCPH6	3,000pcs./reel	Pb Free





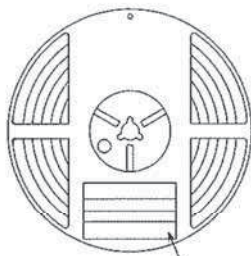
## Taping Specification

MCH6321-TL-E

### 1. Packing Format

Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
MCPH6	MCP4	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

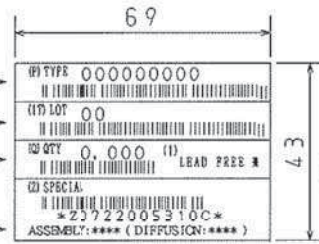
#### Packing method



Type No.  
LOT No.  
Quantity  
Origin

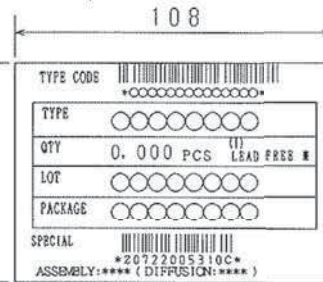
Reel label

Reel label, Inner box label  
(unit:mm)



Outer box label

(It is a label at the time of factory shipments.  
The form of a label may change in physical  
distribution process.)



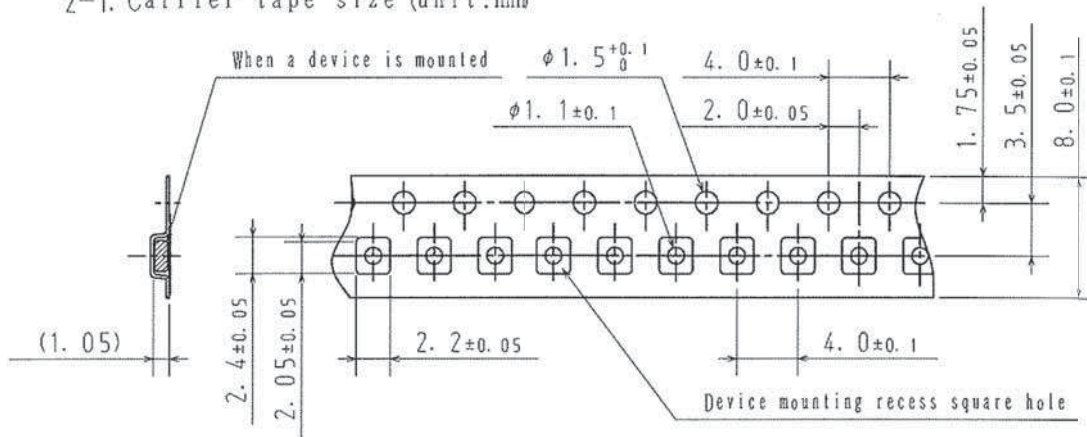
NOTE (1)

The LEAD FREE \* description shows that the surface  
treatment of the terminal is lead free.

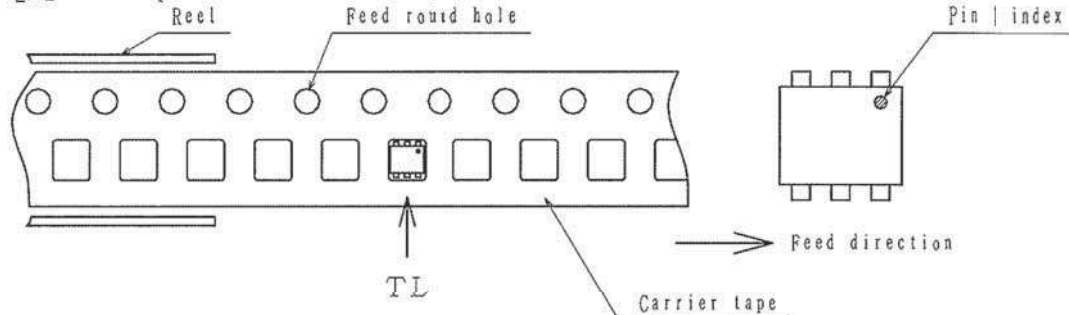
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

### 2. Taping configuration

#### 2-1. Carrier tape size (unit:mm)



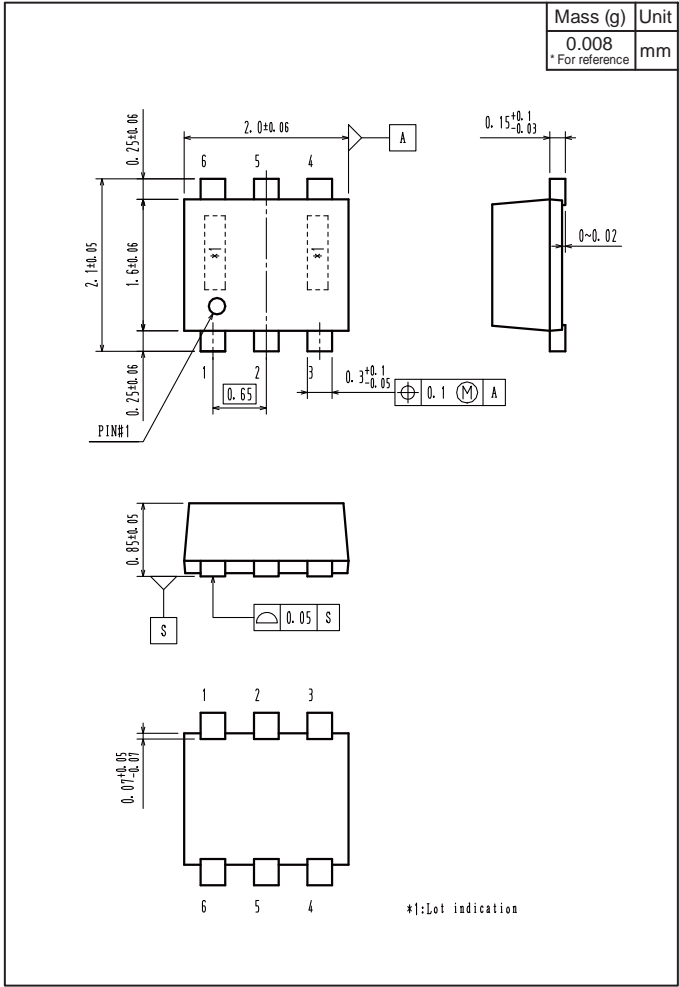
#### 2-2. Device placement direction



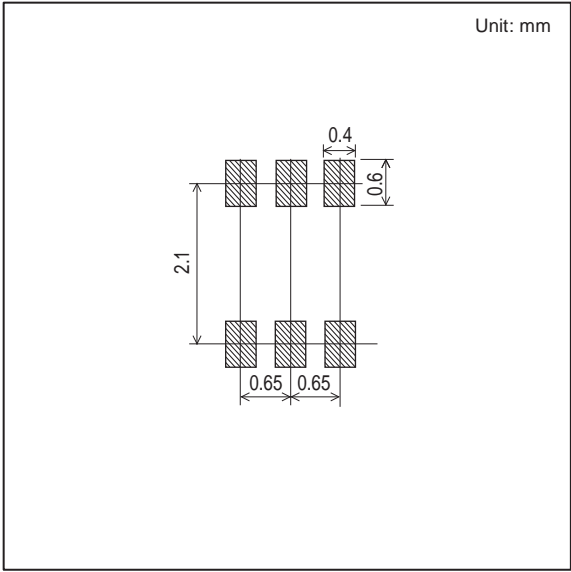
Those with pin | index on the feed hole side.....TL

MCH6321

Outline Drawing  
MCH6321-TL-E



Land Pattern Example



Note on usage : Since the MCH6321 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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