



SANYO Semiconductors

## DATA SHEET

An ON Semiconductor Company

# ECH8310 — P-Channel Silicon MOSFET

## General-Purpose Switching Device

### Applications

#### Features

- 4V drive
- Halogen free compliance
- Protection diode in

#### Specifications

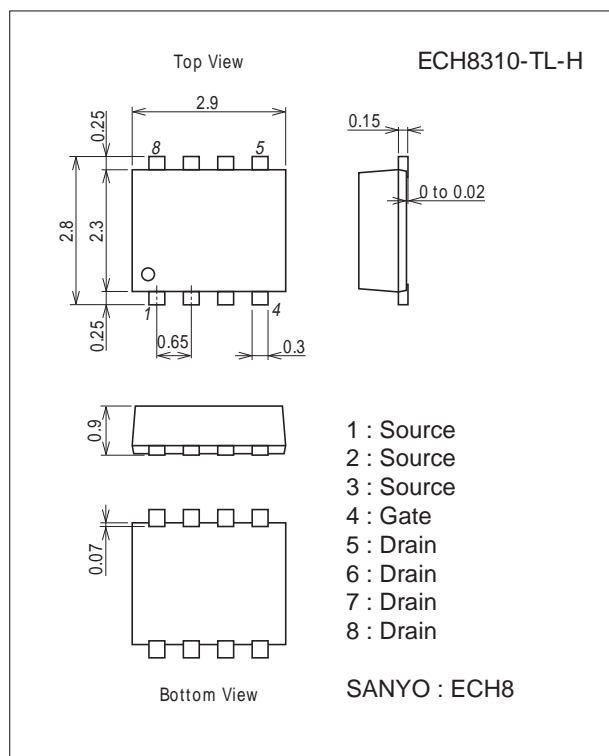
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DS}$		-30	V
Gate-to-Source Voltage	$V_{GS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		-9	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	-60	A
Allowable Power Dissipation	$P_D$	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm)	1.5	W
Channel Temperature	$T_{ch}$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

#### Package Dimensions

unit : mm (typ)

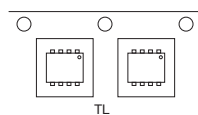
7011A-002



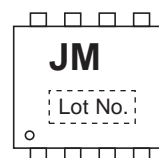
#### Product & Package Information

- Package : ECH8
- JEITA, JEDEC : -
- Minimum Packing Quantity : 3,000 pcs./reel

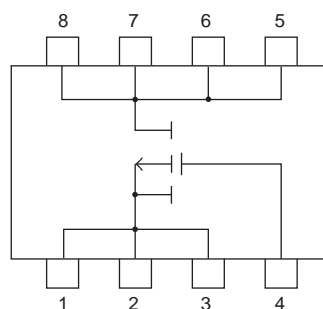
#### Packing Type : TL



#### Marking



#### Electrical Connection

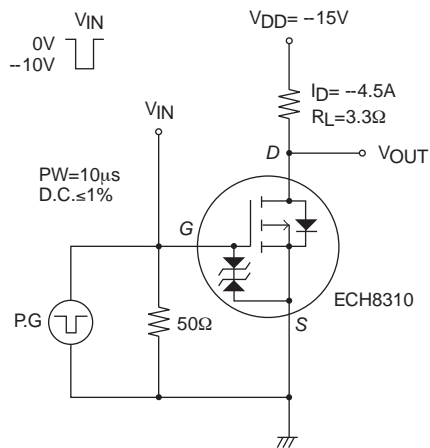


# ECH8310

## Electrical Characteristics at Ta=25°C

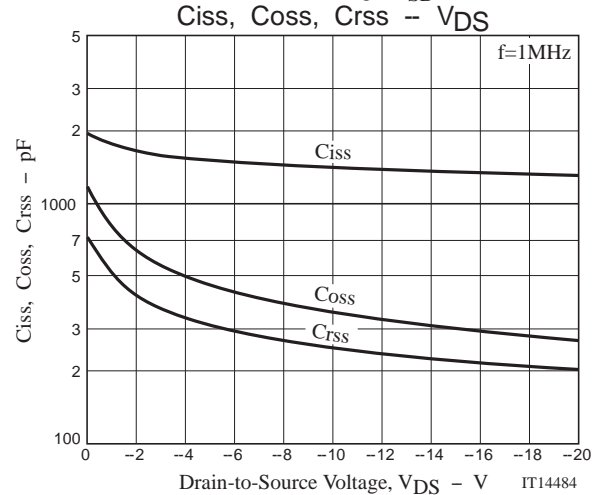
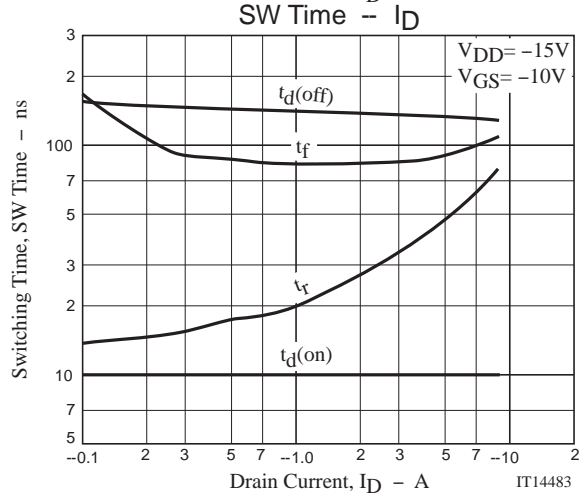
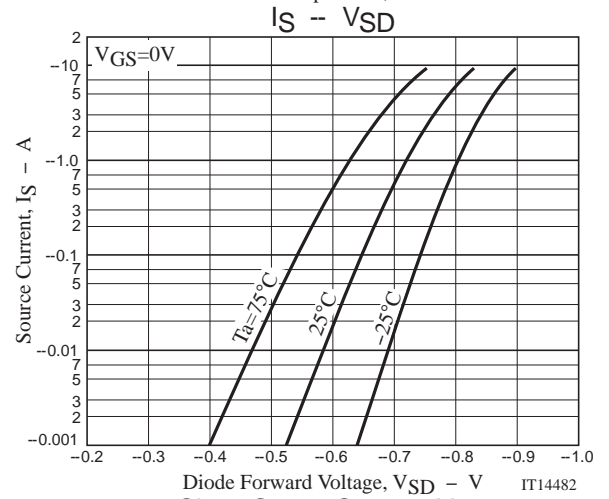
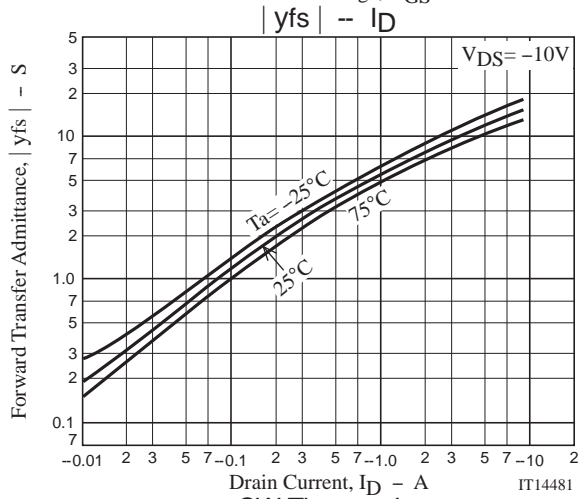
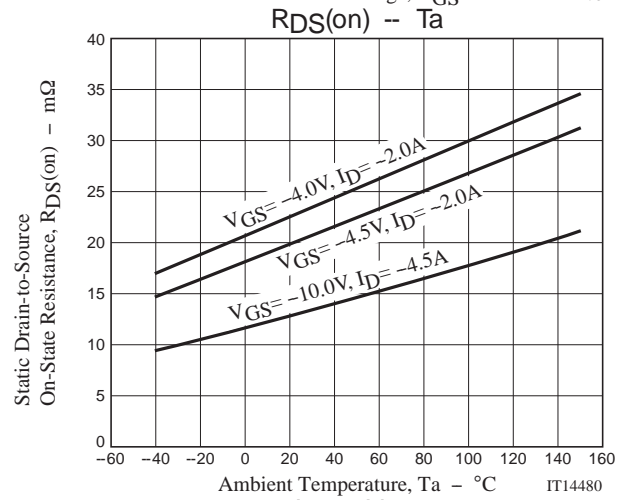
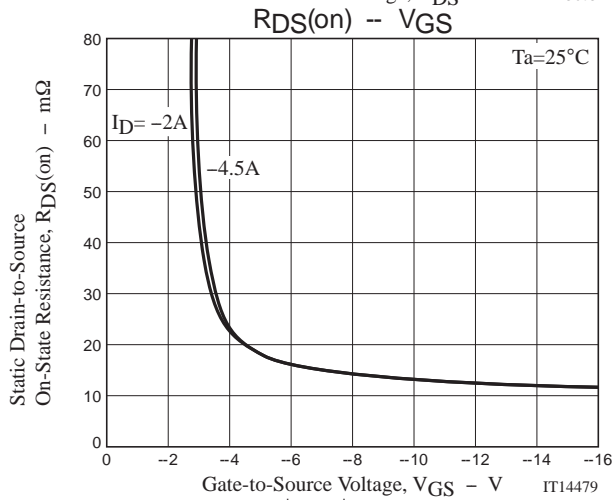
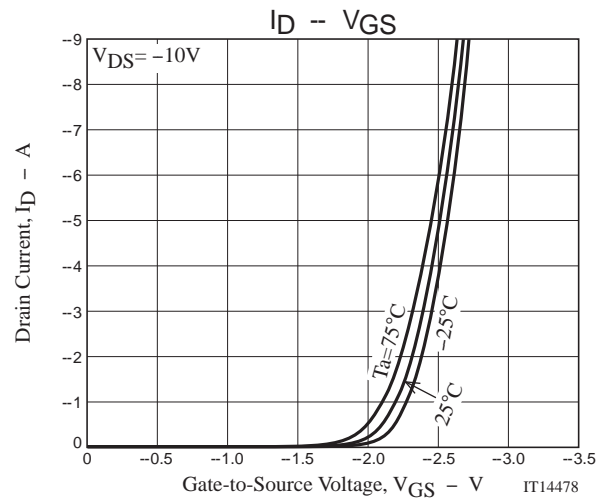
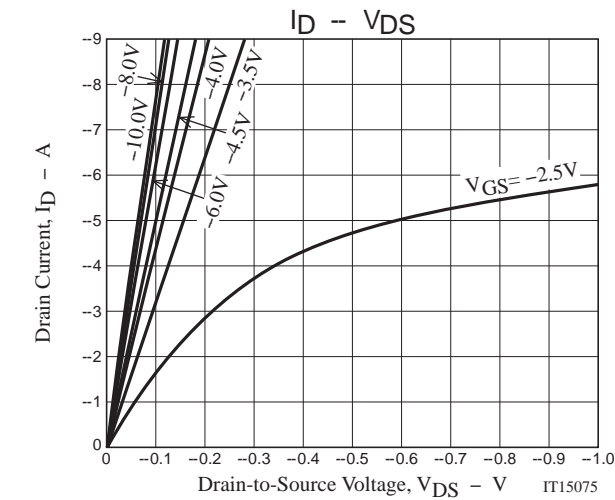
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1mA, V_{GS} = 0V$	-30			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -30V, V_{GS} = 0V$			-1	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 16V, V_{DS} = 0V$			$\pm 10$	$\mu A$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10V, I_D = -1mA$	-1.2		-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10V, I_D = -4.5A$		12		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -4.5A, V_{GS} = -10V$	9	13	17	$m\Omega$
	$R_{DS(on)2}$	$I_D = -2A, V_{GS} = -4.5V$	12	20	28	$m\Omega$
	$R_{DS(on)3}$	$I_D = -2A, V_{GS} = -4.0V$	13.5	23	32.5	$m\Omega$
Input Capacitance	$C_{iss}$	$V_{DS} = -10V, f = 1MHz$		1400		pF
Output Capacitance	$C_{oss}$			350		pF
Reverse Transfer Capacitance	$C_{rss}$			250		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		10		ns
Rise Time	$t_r$			45		ns
Turn-OFF Delay Time	$t_d(off)$			134		ns
Fall Time	$t_f$			87		ns
Total Gate Charge	$Q_g$	$V_{DS} = -15V, V_{GS} = -10V, I_D = -9A$		28		nC
Gate-to-Source Charge	$Q_{gs}$			4		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$			6		nC
Diode Forward Voltage	$V_{SD}$	$I_S = -9A, V_{GS} = 0V$		-0.8	-1.2	V

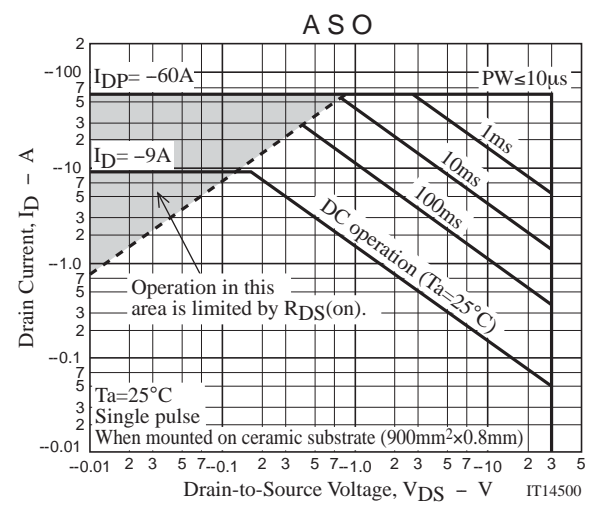
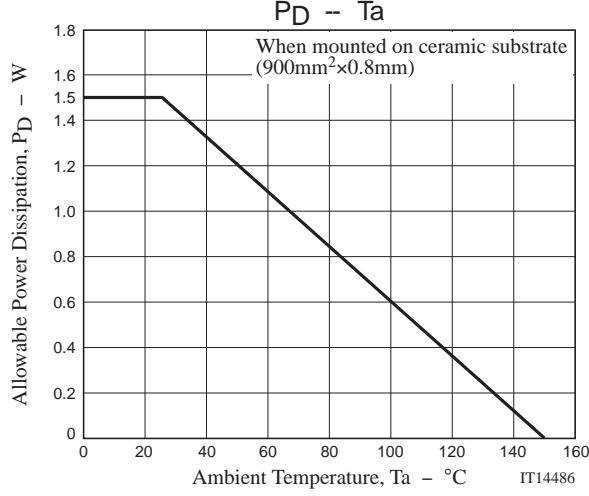
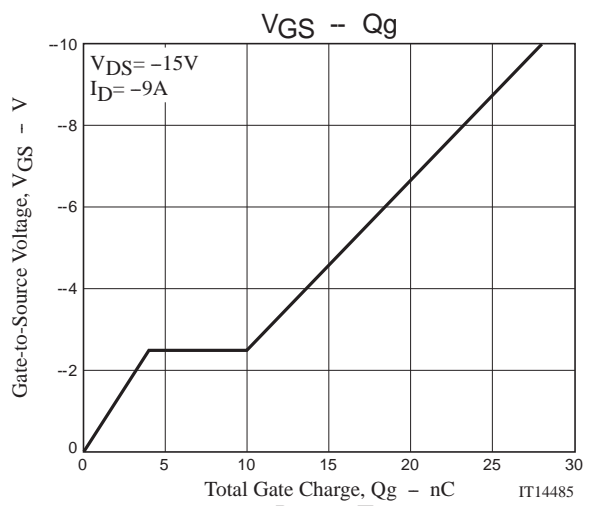
## Switching Time Test Circuit



## Ordering Information

Device	Package	Shipping	memo
ECH8310-TL-H	ECH8	3,000pcs./reel	Pb Free and Halogen Free





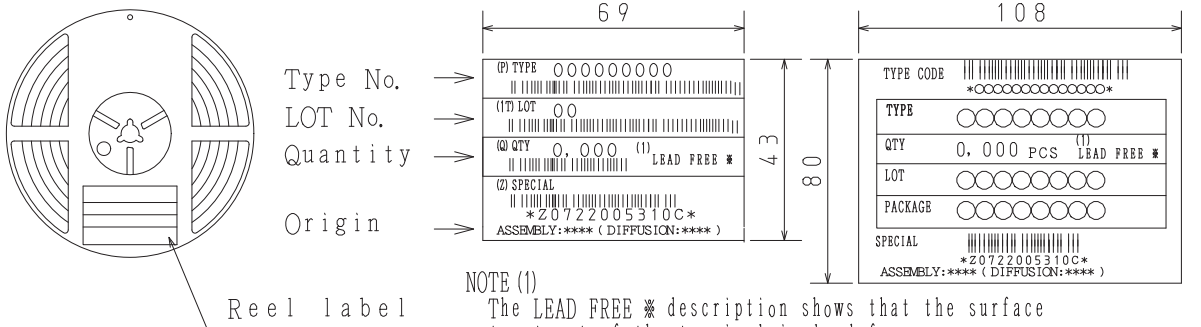
## Embossed Taping Specification

ECH8310-TL-H

### 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)
ECH8	CPH6	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

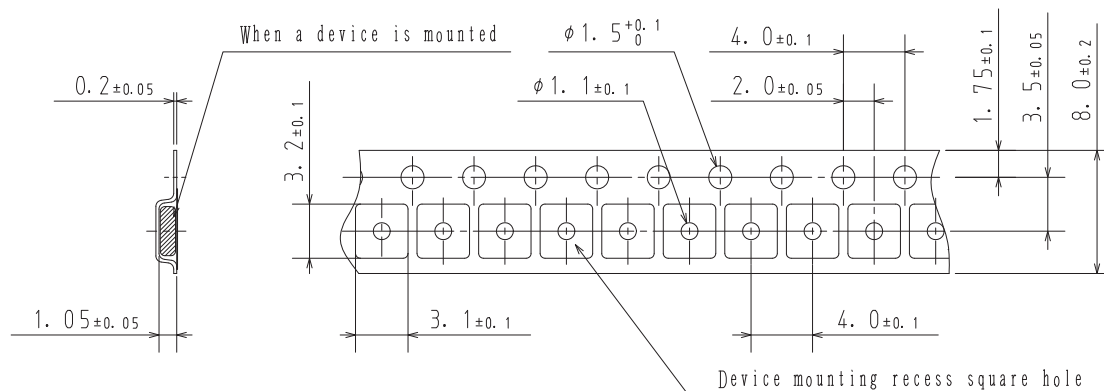
#### Packing method



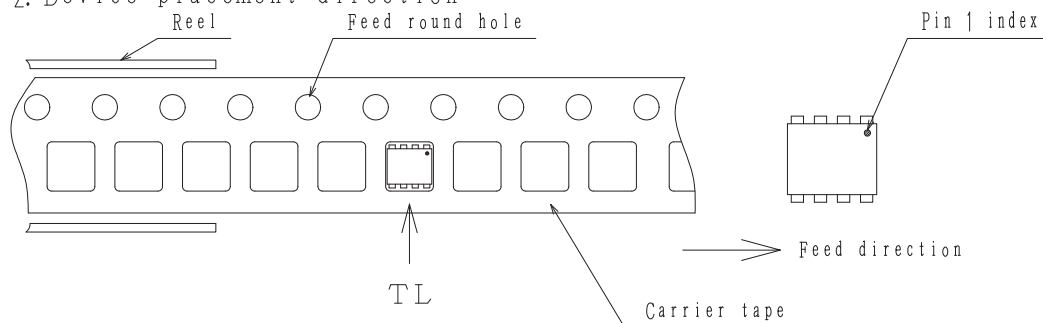
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

### 2. Taping configuration

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

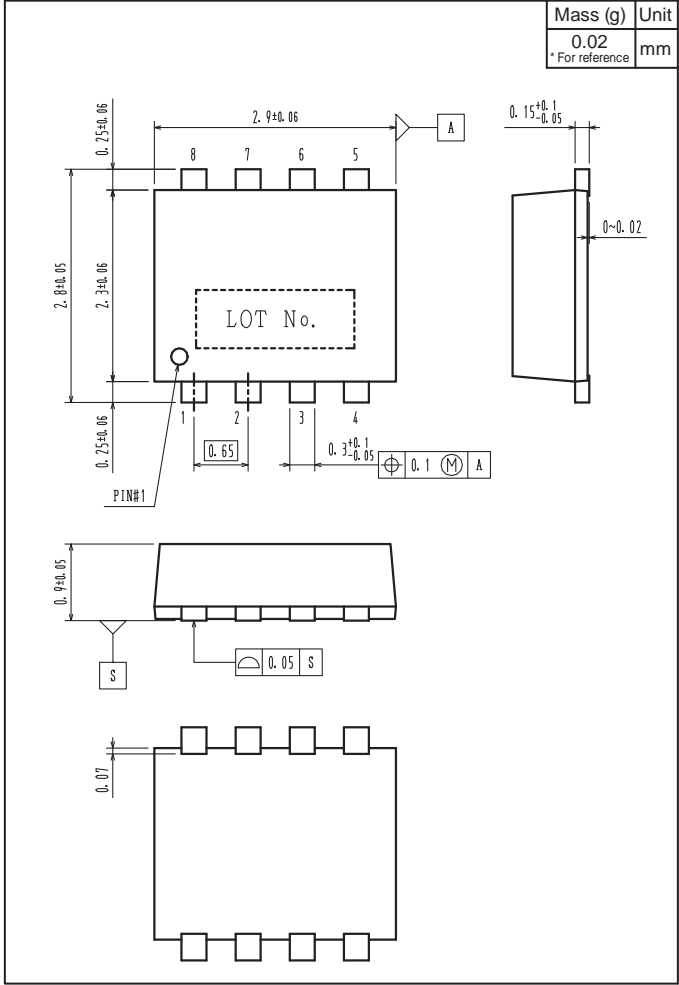


#### 2-2. Device placement direction

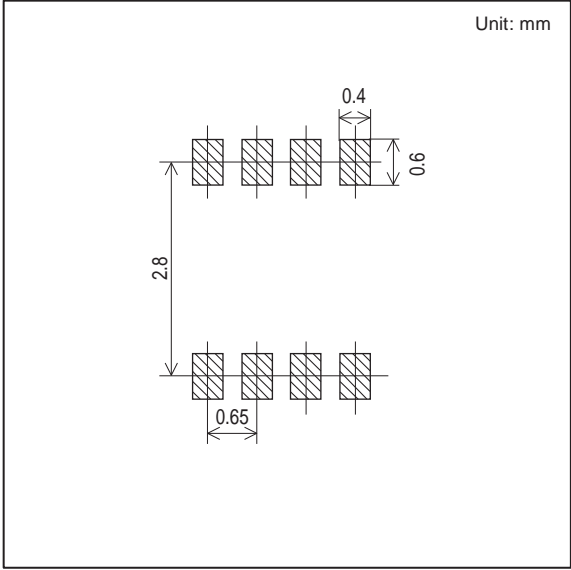


Those with pin 1 index on the feed hole side.....TL

Outline Drawing  
ECH8310-TL-H



Land Pattern Example



Note on usage : Since the ECH8310 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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