

To our customers,

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## Old Company Name in Catalogs and Other Documents

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April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

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# RJK1562DJE

Silicon N Channel MOS FET  
High Speed Power Switching

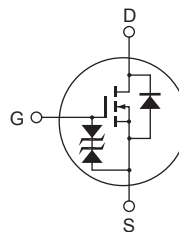
REJ03G1889-0100  
Rev.1.00  
Jan 07, 2010

## Features

- Capable of 2.5 V gate drive
- Low on-resistance  
 $R_{DS(on)} = 1.2 \Omega$  typ. (at  $I_D = 0.5$  A,  $V_{GS} = 2.5$  V,  $T_a = 25^\circ\text{C}$ )
- Low drive current

## Outline

RENESAS Package code: PRSS0003DC-A  
(Package name: TO-92 Mod)



1. Source
2. Drain
3. Gate

## Absolute Maximum Ratings

( $T_a = 25^\circ\text{C}$ )

Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DSS}$	150	V
Gate to source voltage	$V_{GSS}$	$\pm 10$	V
Drain current	$I_D$ <sup>Note1</sup>	1	A
Drain peak current	$I_D$ (pulse) <sup>Note2</sup>	4	A
Body-drain diode reverse drain current	$I_{DR}$	1	A
Body-drain diode reverse drain peak current	$I_{DR}$ <sup>Note2</sup>	4	A
Channel dissipation	Pch	0.9	W
Channel to ambient thermal impedance	$\theta_{ch-a}$	139	$^\circ\text{C/W}$
Channel temperature	Tch	150	$^\circ\text{C}$
Storage temperature	Tstg	-55 to +150	$^\circ\text{C}$

- Notes: 1. Limited by maximum safe operation area  
2.  $PW \leq 10 \mu\text{s}$ , duty cycle  $\leq 1\%$

## Electrical Characteristics

(Ta = 25°C)

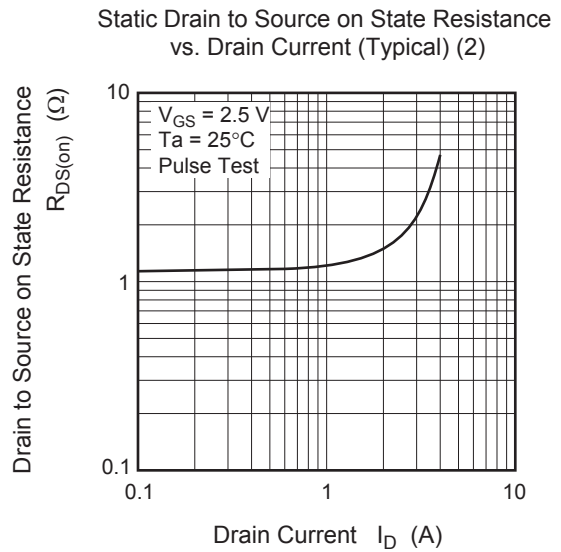
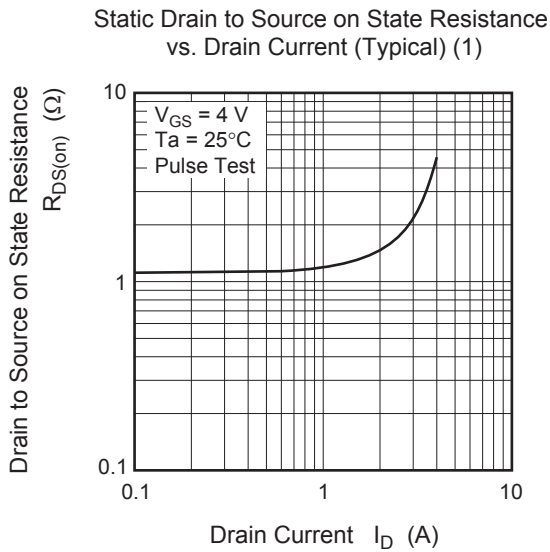
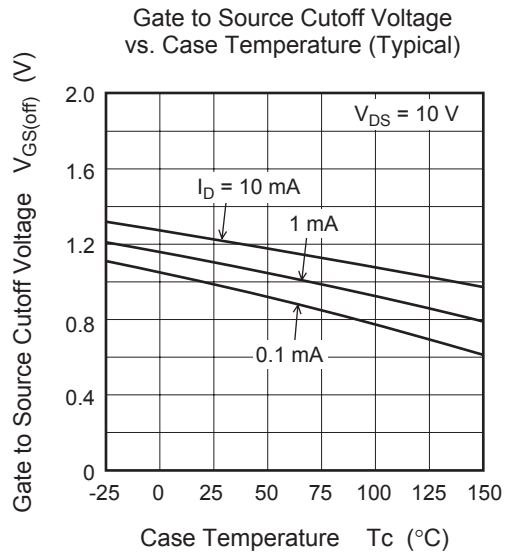
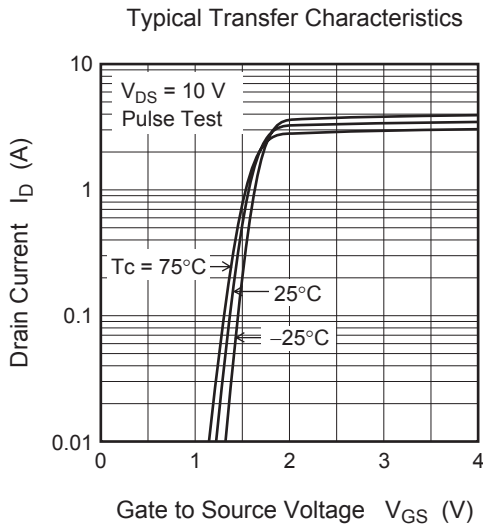
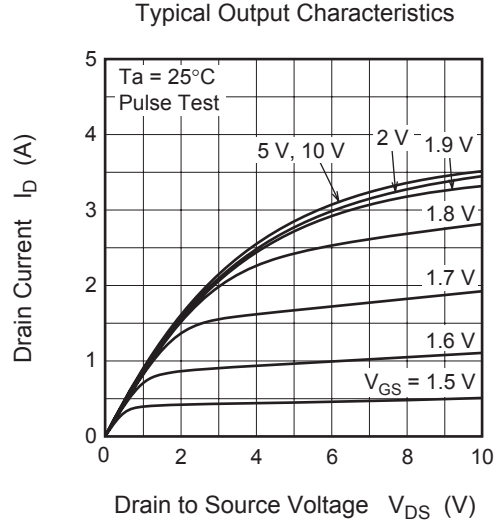
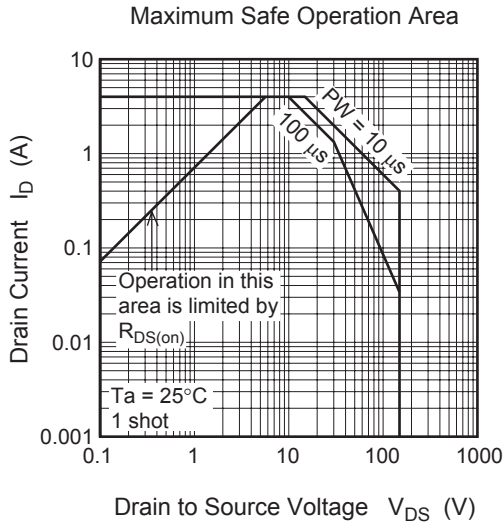
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	150	—	—	V	$I_D = 10 \text{ mA}$ , $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	$\pm 10$	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}$ , $V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	1	$\mu\text{A}$	$V_{DS} = 150 \text{ V}$ , $V_{GS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 10 \text{ V}$ , $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	0.5	—	1.5	V	$V_{DS} = 10 \text{ V}$ , $I_D = 1 \text{ mA}$
Static drain to source on state resistance	$R_{DS(on)}$	—	1.2	1.4	$\Omega$	$I_D = 0.5 \text{ A}$ , $V_{GS} = 4 \text{ V}$ <sup>Note3</sup>
	$R_{DS(on)}$	—	1.2	1.6	$\Omega$	$I_D = 0.5 \text{ A}$ , $V_{GS} = 2.5 \text{ V}$ <sup>Note3</sup>
Input capacitance	$C_{iss}$	—	300	—	pF	$V_{DS} = 25 \text{ V}$
Output capacitance	$C_{oss}$	—	18	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	$C_{rss}$	—	4.4	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	6	—	ns	$I_D = 0.5 \text{ A}$
Rise time	$t_r$	—	11	—	ns	$V_{GS} = 4 \text{ V}$
Turn-off delay time	$t_{d(off)}$	—	16	—	ns	$R_L = 160 \text{ }\Omega$
Fall time	$t_f$	—	78	—	ns	$R_g = 10 \text{ }\Omega$
Total gate charge	$Q_g$	—	3.0	—	nC	$V_{DD} = 120 \text{ V}$
Gate to source charge	$Q_{gs}$	—	0.5	—	nC	$V_{GS} = 4 \text{ V}$
Gate to drain charge	$Q_{gd}$	—	1.2	—	nC	$I_D = 1 \text{ A}$
Body-drain diode forward voltage	$V_{DF}$	—	0.84	1.30	V	$I_F = 1 \text{ A}$ , $V_{GS} = 0$ <sup>Note3</sup>
Body-drain diode reverse recovery time	$t_{rr}$	—	42	—	ns	$I_F = 1 \text{ A}$ , $V_{GS} = 0$ $di_F/dt = 100 \text{ A}/\mu\text{s}$

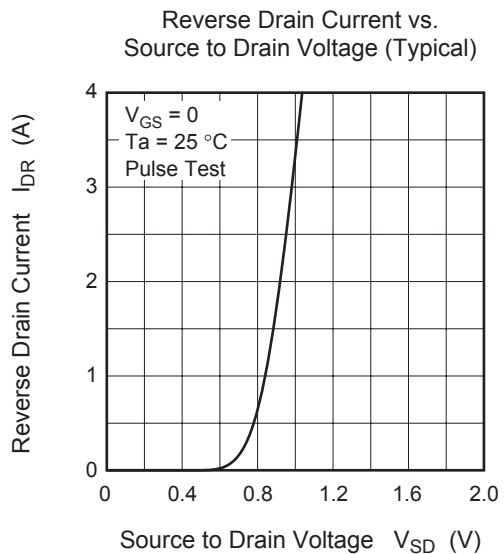
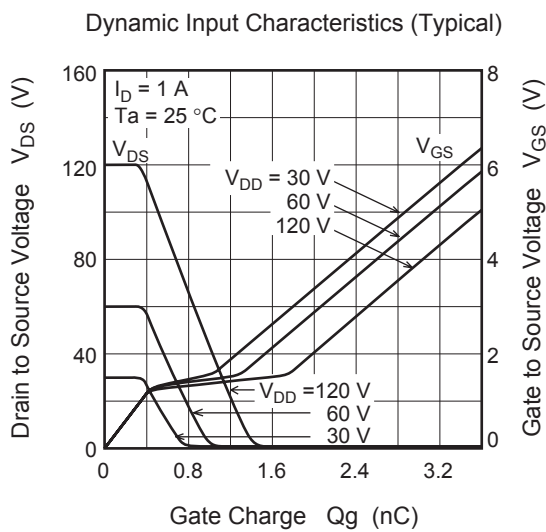
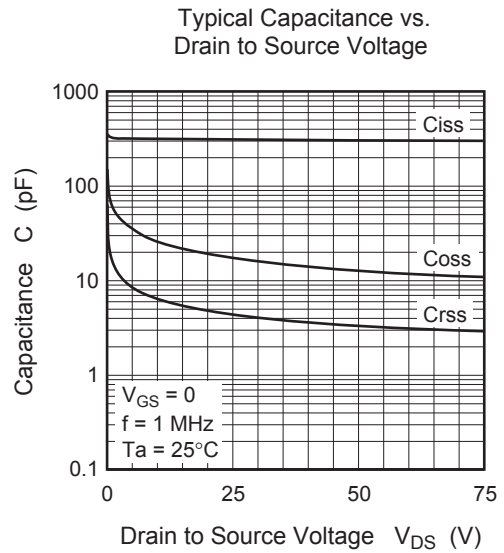
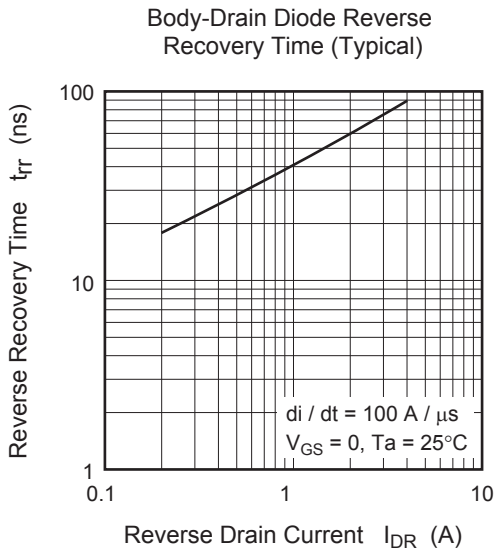
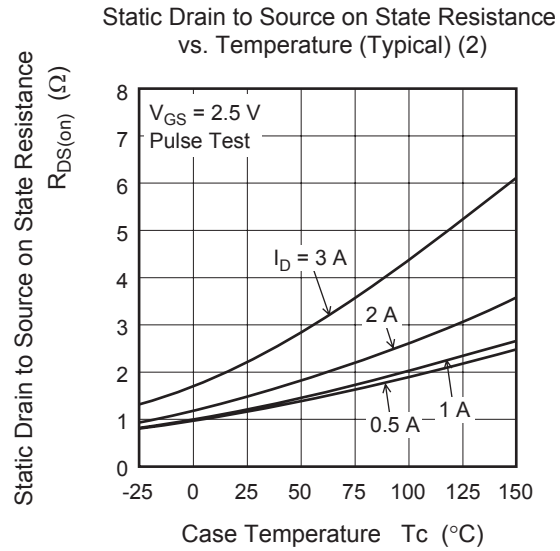
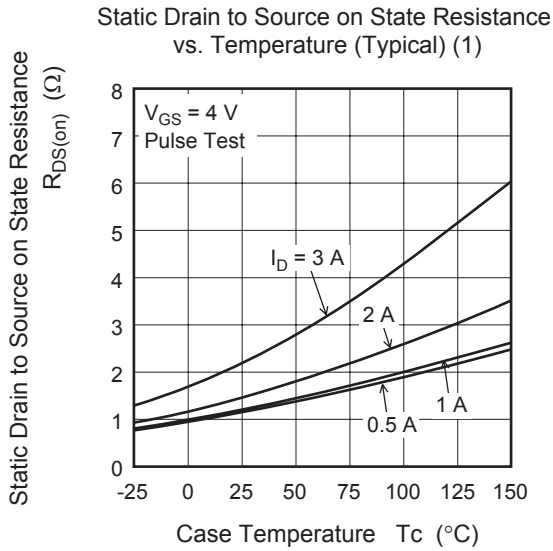
Notes: 3. Pulse test

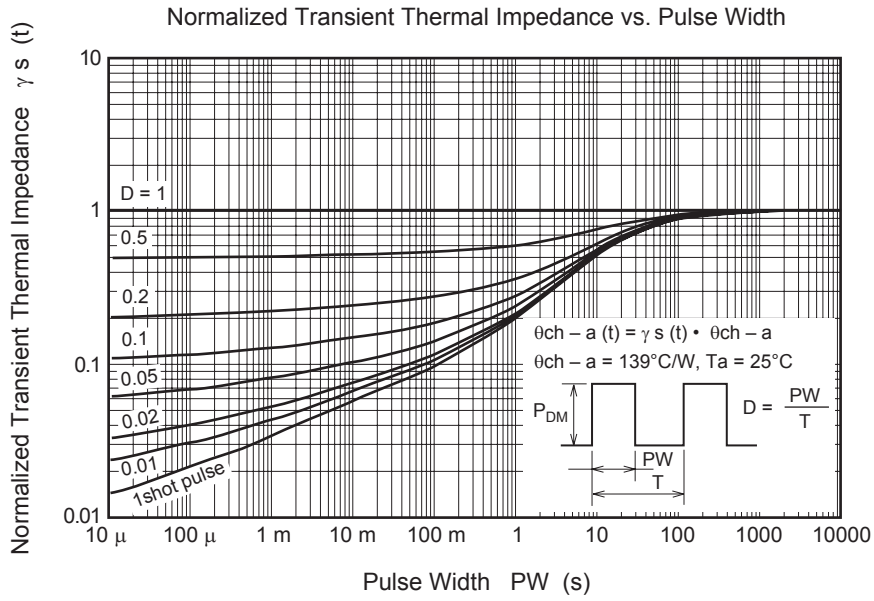
4. This device is sensitive to electrostatic discharge.

It is recommended to adopt appropriate cautions when handling this product.

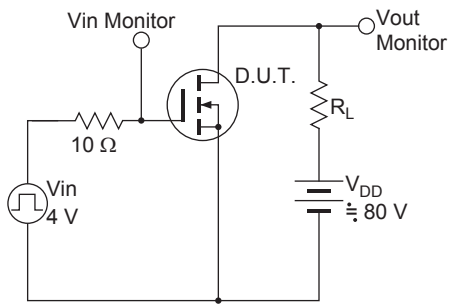
Main Characteristics



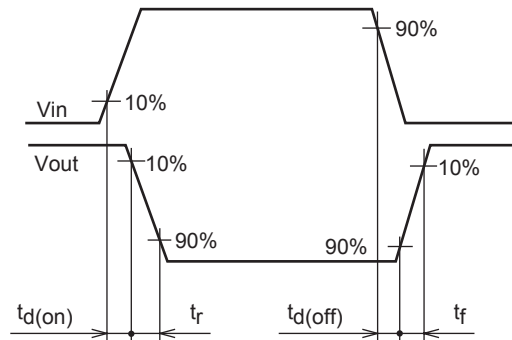




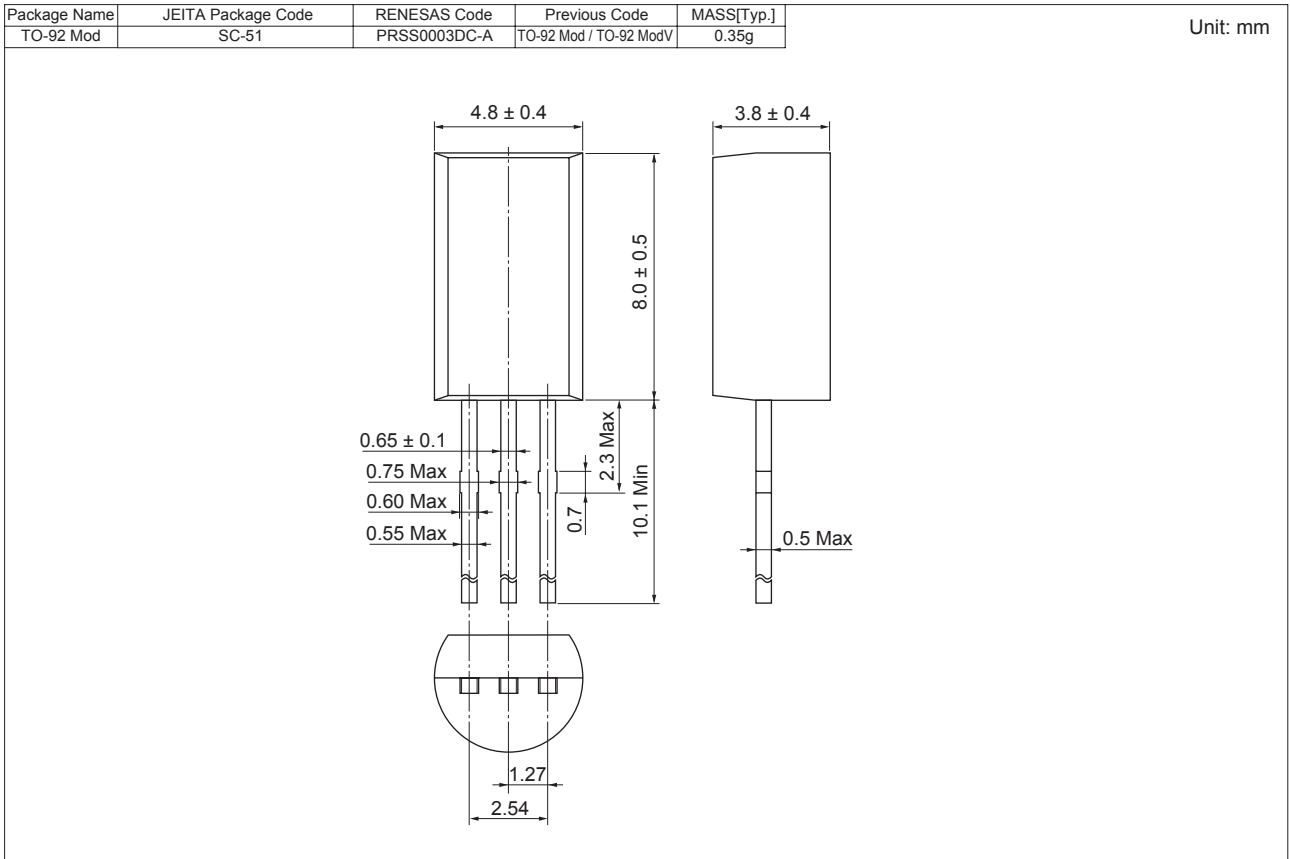
Switching Time Test Circuit



Waveform



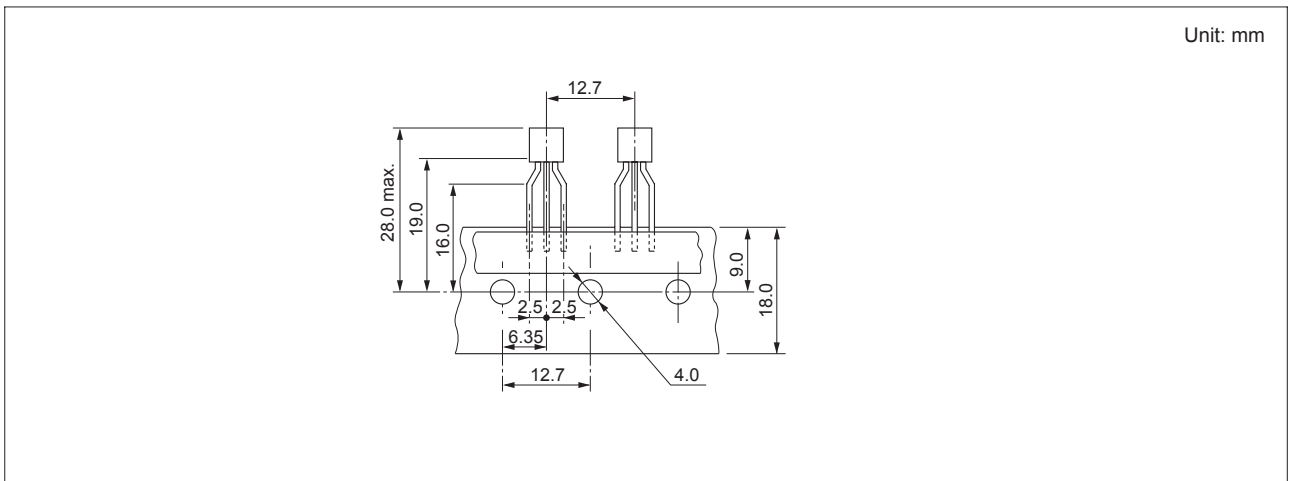
### Package Dimensions



### Ordering Information

Part No.	Quantity	Shipping Container
RJK1562DJE-00-Z0	2500 pcs	Hold Box, Radial Taping

Note: Leads forming applied as following figure.





Notes:

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