
2SK2393

Silicon N-Channel MOS FET

HITACHI

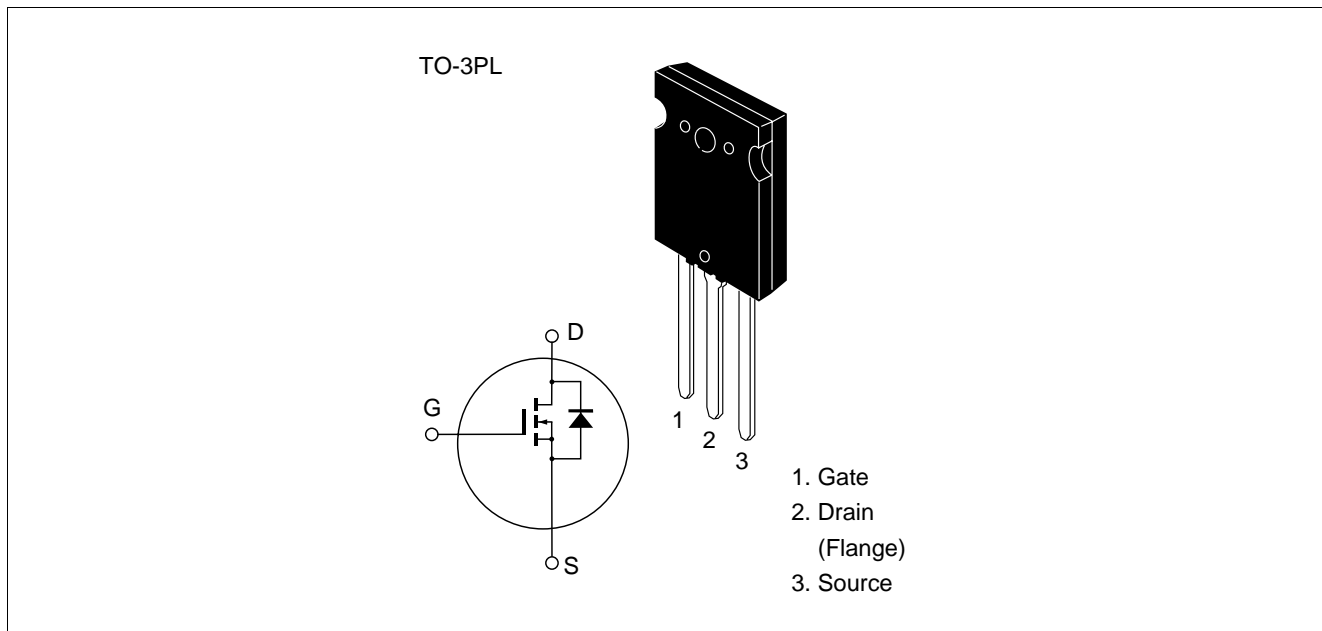
Application

High voltage / High speed power switching

Features

- Low on-resistance, High breakdown voltage
- High speed switching
- Low Drive Current
- No Secondary Breakdown
- Suitable for Switching regulator, Motor Control

Outline



Absolute Maximum Ratings (Ta = 25°C)

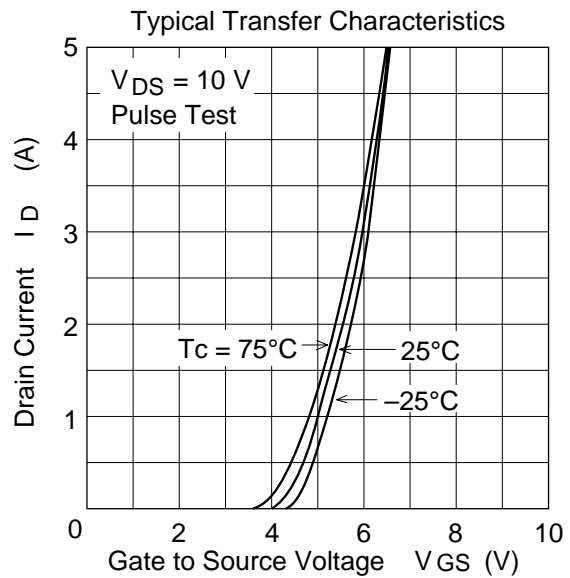
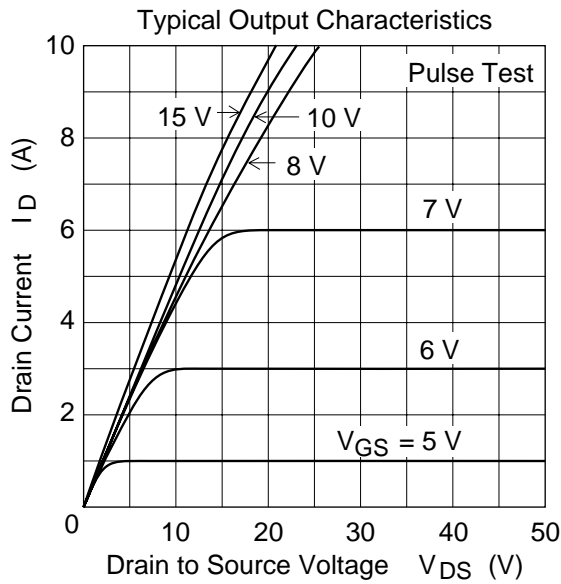
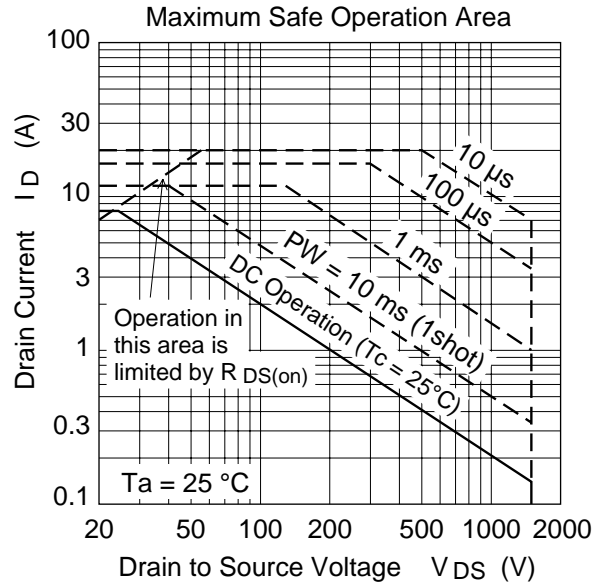
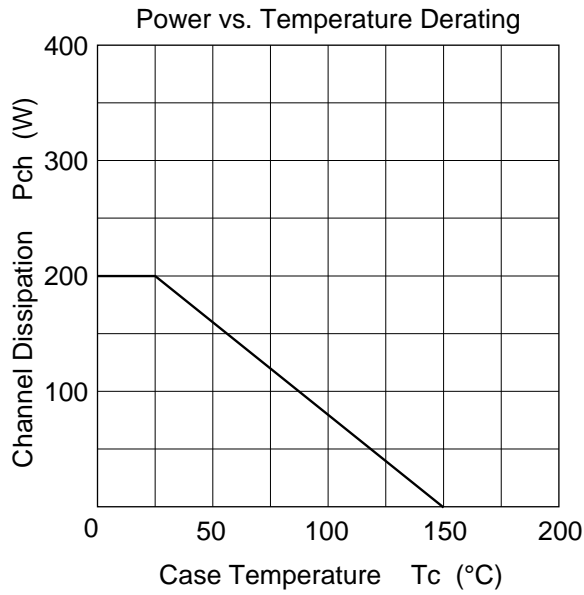
Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	1500	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	8	A
Drain peak current	$I_{D(pulse)}^{*1}$	20	A
Body to drain diode reverse drain current	I_{DR}	8	A
Channel dissipation	Pch ^{*2}	200	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

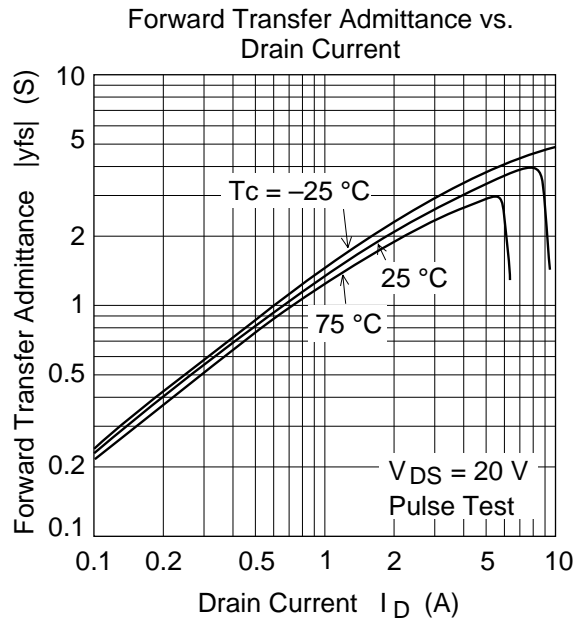
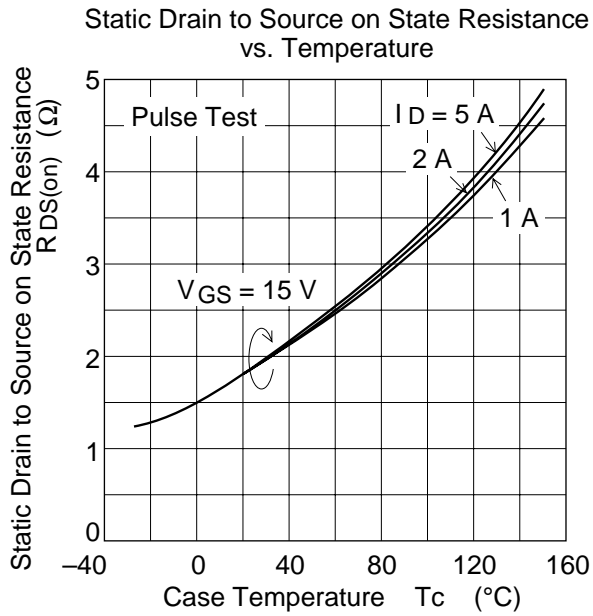
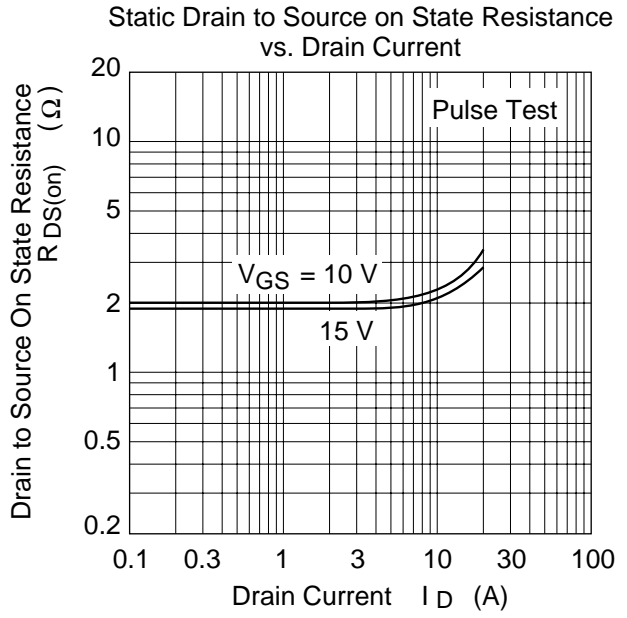
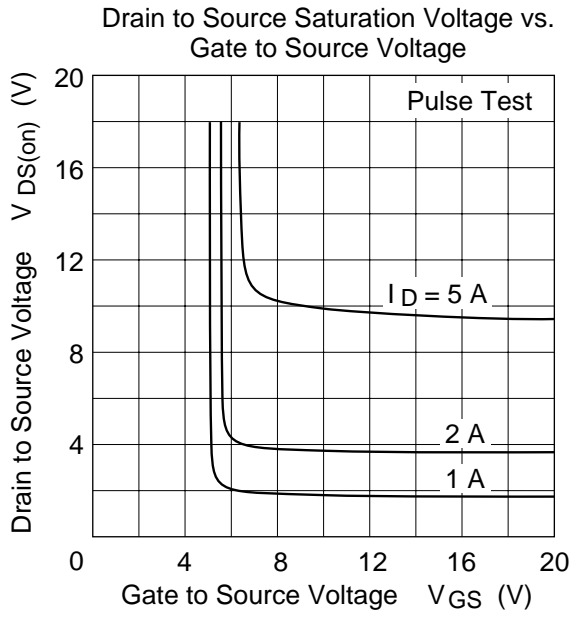
Notes 1. $PW \leq 10 \mu s$, duty cycle $\leq 1\%$
 2. Value at $T_c = 25^\circ C$

Electrical Characteristics (Ta = 25°C)

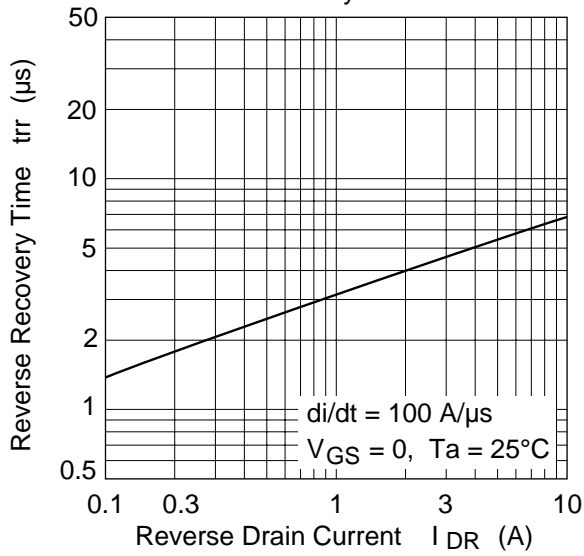
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	1500	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0^{*1}$
Gate to source leak current	I_{GSS}	—	—	±1	μA	$V_{GS} = \pm 20 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	500	μA	$V_{DS} = 1200 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	2.0	—	4.0	V	$I_D = 1 \text{ mA}$, $V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	1.9	2.8	Ω	$I_D = 4 \text{ A}$ $V_{GS} = 15 \text{ V}^{*1}$
Forward transfer admittance	$ y_{fs} $	1.8	3.0	—	S	$I_D = 4 \text{ A}$ $V_{DS} = 20 \text{ V}^{*1}$
Input capacitance	Ciss	—	4370	—	pF	$V_{DS} = 10 \text{ V}$
Output capacitance	Coss	—	560	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	Crss	—	200	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	75	—	ns	$I_D = 4 \text{ A}$
Rise time	t_r	—	180	—	ns	$V_{GS} = 10 \text{ V}$
Turn-off delay time	$t_{d(off)}$	—	260	—	ns	$R_L = 7.5 \Omega$
Fall time	t_f	—	125	—	ns	
Body to drain diode forward voltage	V_{DF}	—	0.9	—	V	$I_F = 8 \text{ A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	6.5	—	μs	$I_F = 8 \text{ A}$, $V_{GS} = 0$, $di_F / dt = 100 \text{ A} / \mu s$

Note 1. Pulse Test

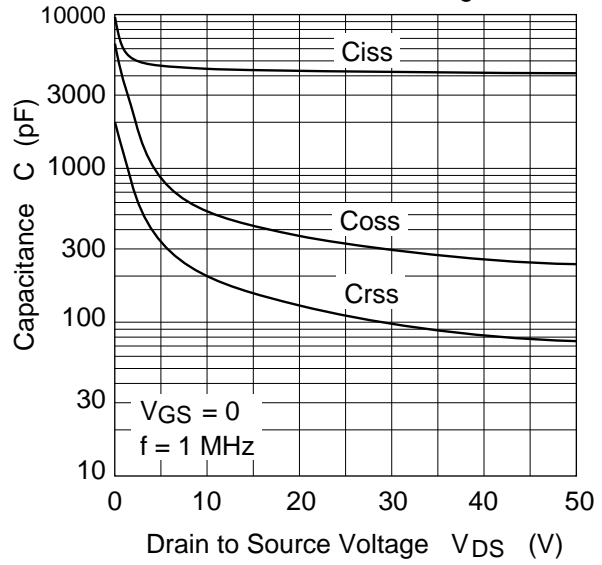




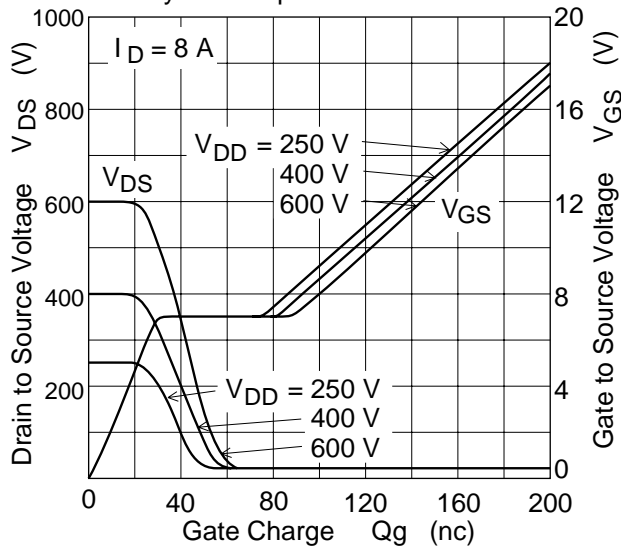
Body to Drain Diode Reverse Recovery Time



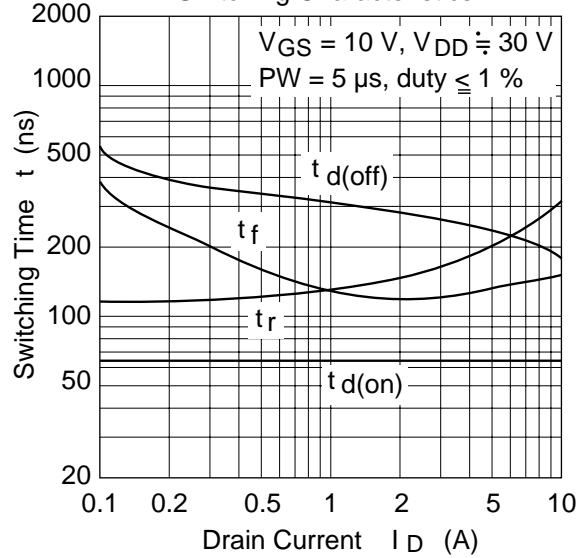
Typical Capacitance vs. Drain to Source Voltage

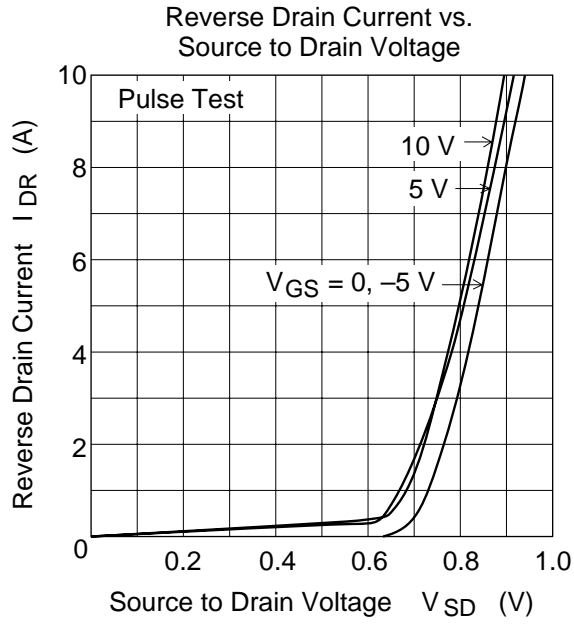


Dynamic Input Characteristics

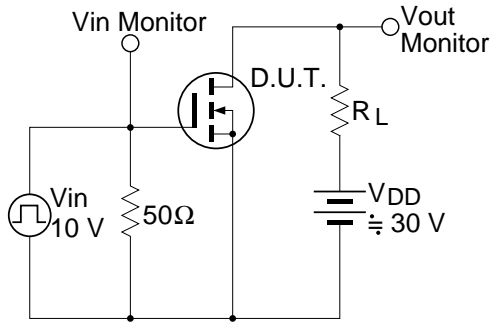


Switching Characteristics

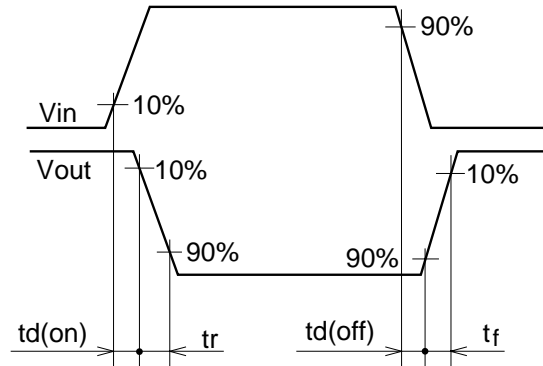




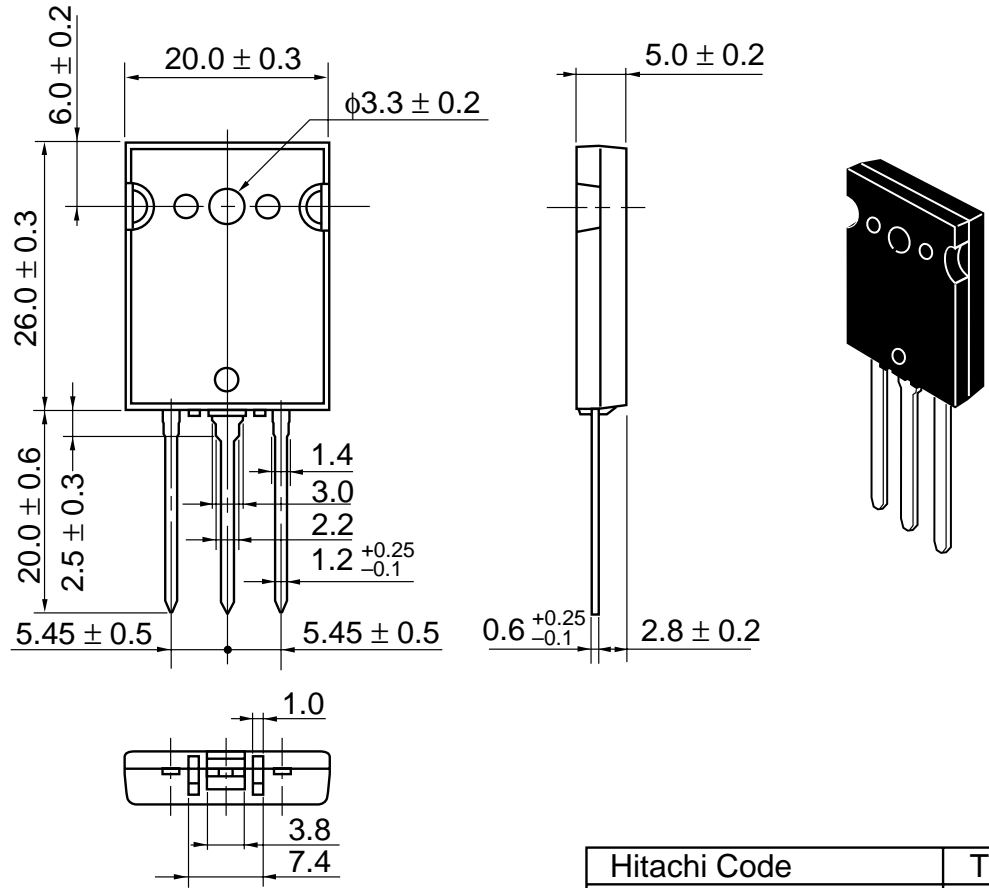
Switching Time Test Circuit



Waveform



Unit: mm



Hitachi Code	TO-3PL
JEDEC	—
EIAJ	—
Weight (reference value)	9.9 g

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