



BFL4001 — N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS(on)}=2.1\Omega$ (typ.)
- Input capacitance $C_{iss}=850pF$ (typ.)
- 10V drive

Specifications

Absolute Maximum Ratings at $T_a=25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		900	V
Gate-to-Source Voltage	V_{GSS}		± 30	V
Drain Current (DC)	I_{DC}^{*1}	Limited only by maximum temperature $T_{ch}=150^\circ C$	6.5	A
	I_{Dpack}^{*2}	$T_c=25^\circ C$ (SANYO's ideal heat dissipation condition)*3	4.1	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	13	A
Allowable Power Dissipation	PD		2.0	W
		$T_c=25^\circ C$ (SANYO's ideal heat dissipation condition)*3	37	W
Channel Temperature	T_{ch}		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$
Avalanche Energy (Single Pulse) *4	EAS		223	mJ
Avalanche Current *5	I _{AV}		6.5	A

Note : *1 Shows chip capability

*2 Package limited

*3 SANYO's condition is radiation from backside.

The method is applying silicone grease to the backside of the device and attaching the device to water-cooled radiator made of aluminium.

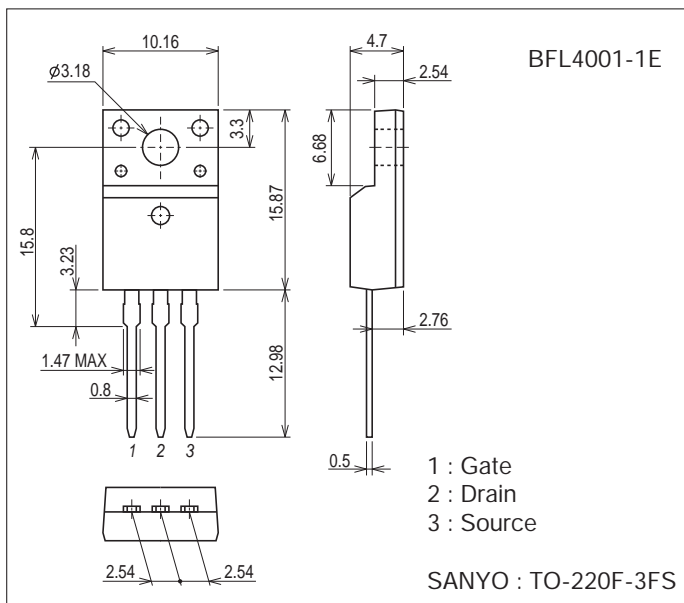
*4 $V_{DD}=50V$, $L=10mH$, $I_{AV}=6.5A$

*5 $L \leq 10mH$, single pulse

Package Dimensions

unit : mm (typ)

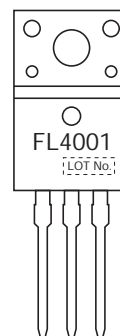
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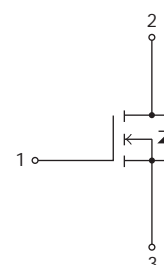
Product & Package Information

- Package : TO-220F-3FS
- JEITA, JEDEC : SC-67
- Minimum Packing Quantity : 50 pcs./magazine

Marking



Electrical Connection

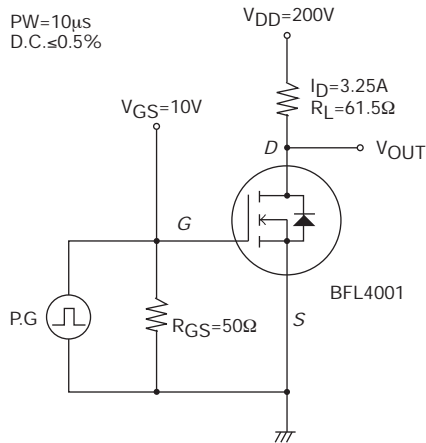


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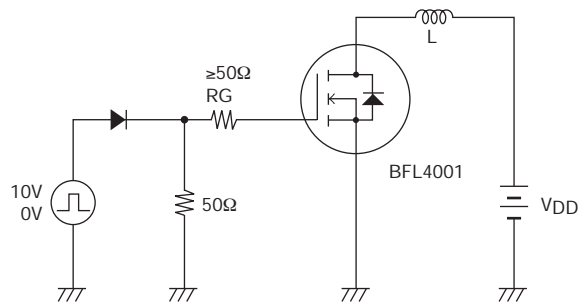
Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit	
			min	typ	max		
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=10\text{mA}, V_{GS}=0\text{V}$	900			V	
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=720\text{V}, V_{GS}=0\text{V}$			1.0	mA	
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 30\text{V}, V_{DS}=0\text{V}$			± 100	nA	
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}, I_D=1\text{mA}$	2.0		4.0	V	
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=20\text{V}, I_D=3.25\text{A}$	1.8	3.6		S	
Static Drain-to-Source On-State Resistance	$R_{DS(on)}$	$I_D=3.25\text{A}, V_{GS}=10\text{V}$		2.1	2.7	Ω	
Input Capacitance	C_{iss}	$V_{DS}=30\text{V}, f=1\text{MHz}$		850		pF	
Output Capacitance	C_{oss}				130		pF
Reverse Transfer Capacitance	C_{rss}				43		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		19		ns	
Rise Time	t_r			49		ns	
Turn-OFF Delay Time	$t_{d(off)}$			156		ns	
Fall Time	t_f			52		ns	
Total Gate Charge	Q_g	$V_{DS}=200\text{V}, V_{GS}=10\text{V}, I_D=6.5\text{A}$		44		nC	
Gate-to-Source Charge	Q_{gs}			7.0		nC	
Gate-to-Drain "Miller" Charge	Q_{gd}			22		nC	
Diode Forward Voltage	V_{SD}	$I_S=6.5\text{A}, V_{GS}=0\text{V}$		0.85	1.2	V	

Switching Time Test Circuit

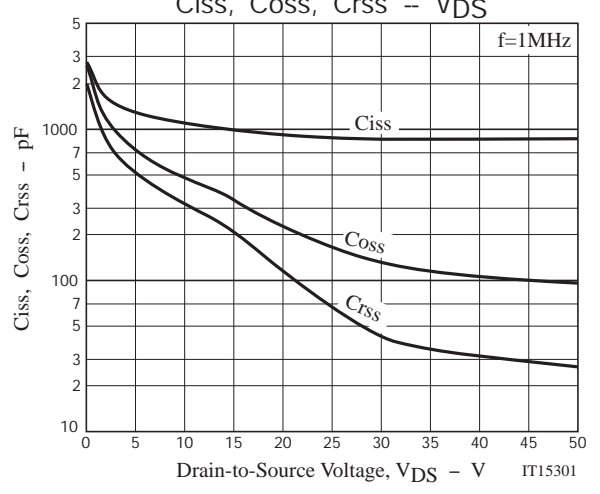
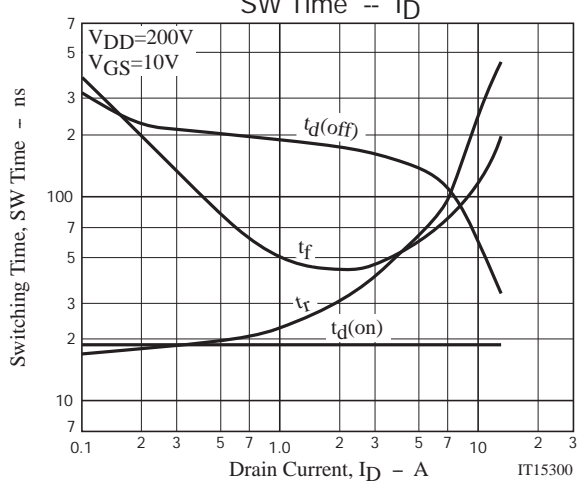
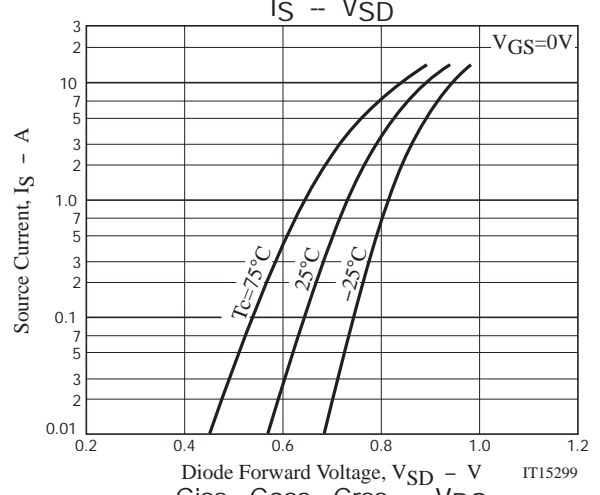
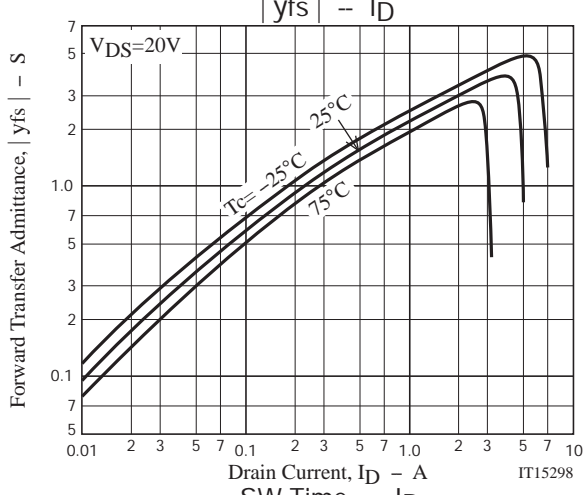
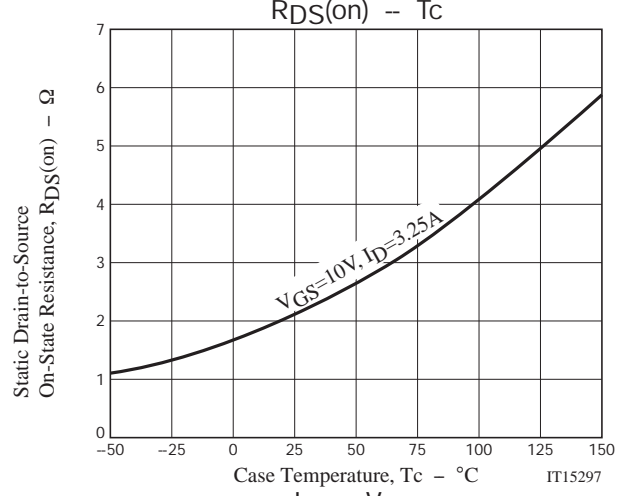
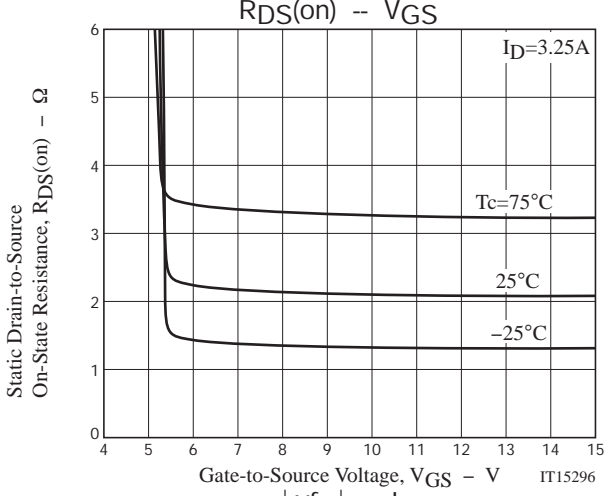
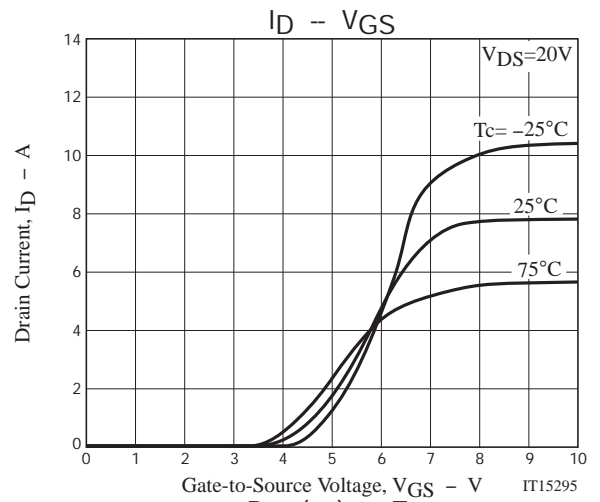
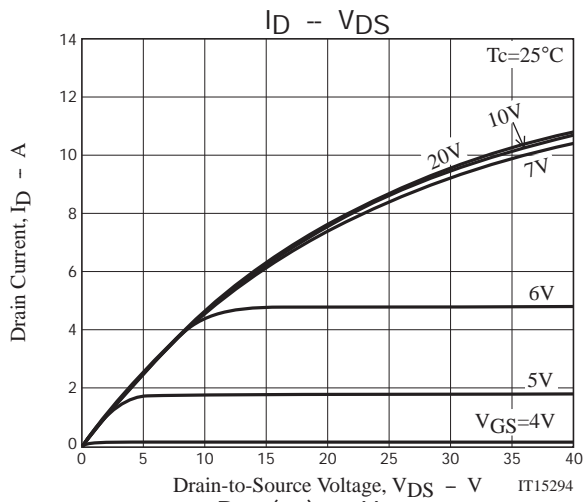


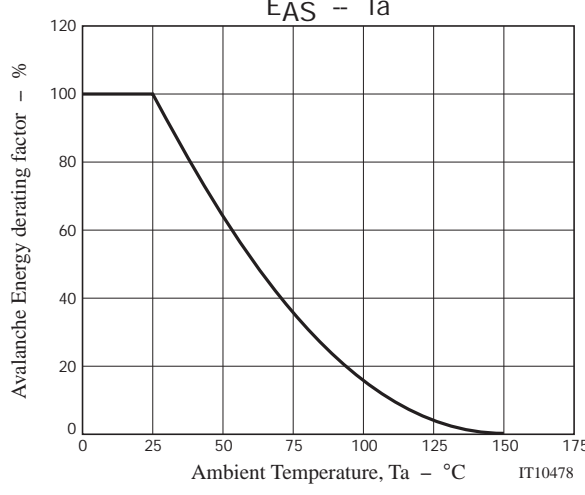
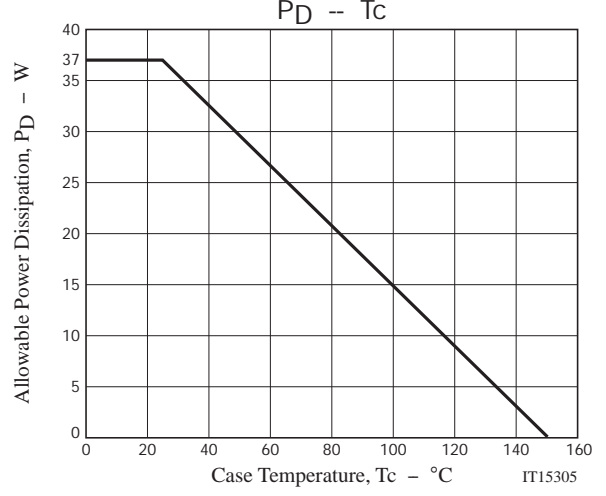
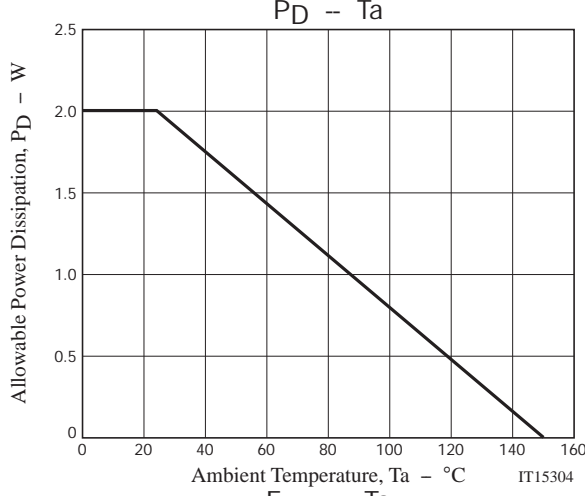
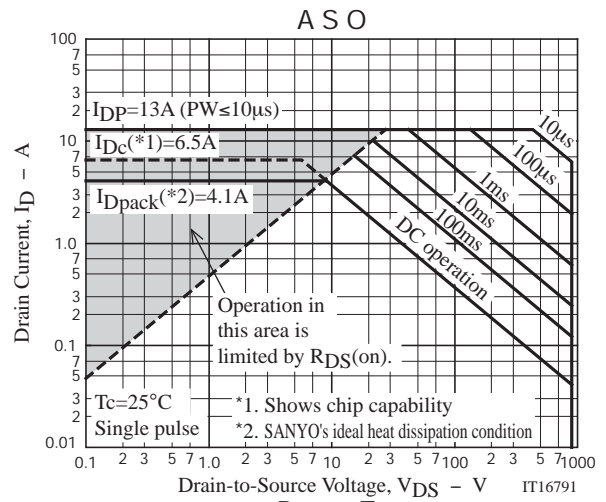
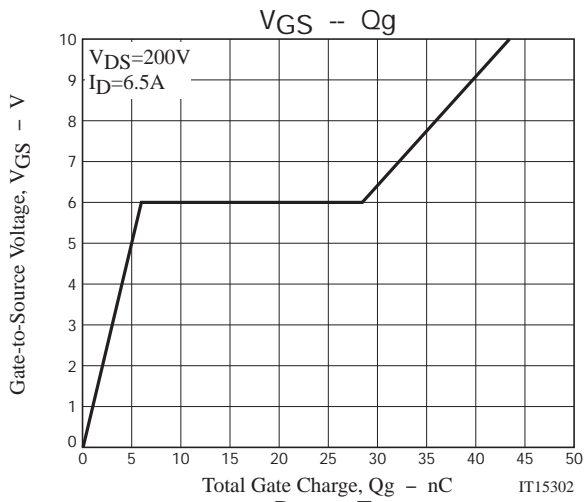
Avalanche Resistance Test Circuit



Ordering Information

Device	Package	Shipping	memo
BFL4001-1E	TO-220F-3FS	50pcs./magazine	Pb Free





Magazine Specification

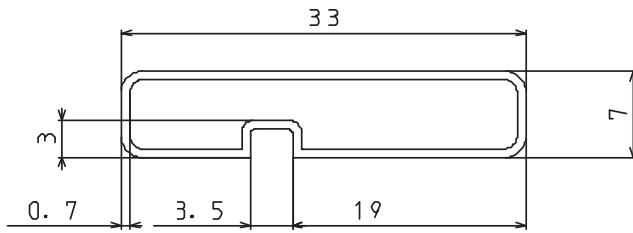
BFL4001-1E

1. Packing Format

Package Name	Magazine Name	Maximum Number of devices contained (pcs)			Packing format	
		Magazine	Inner box	Outer box	Inner BOX	Outer BOX
TO-220F-3FS	TO-220F	50	1,000	4,000	SPD-0V0001 20 magazines contained Dimensions:mm (external) 568×150×55	SPT-081029 4 inner boxes contained Dimensions:mm (external) 590×225×178

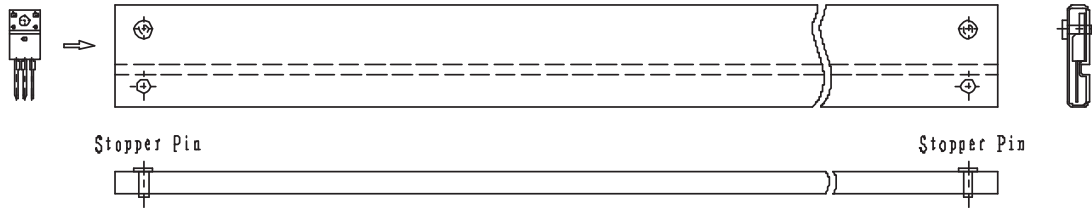
2. Magazine dimensions

(unit:mm)

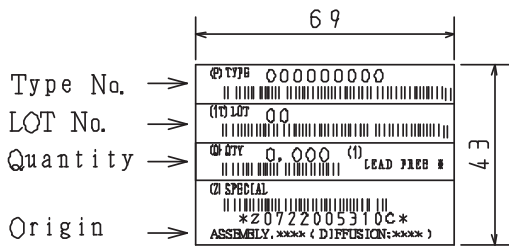


Tolerance=±0.3mm
 Thickness=0.7±0.2mm
 Length =532.5±2mm
 Material =PVC (Antistatic treatment)

3. Storage method to magazine

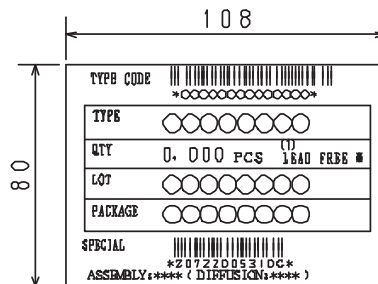


4. Inner box label (unit:mm)



5. Outer box label (unit:mm)

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



NOTE (1)

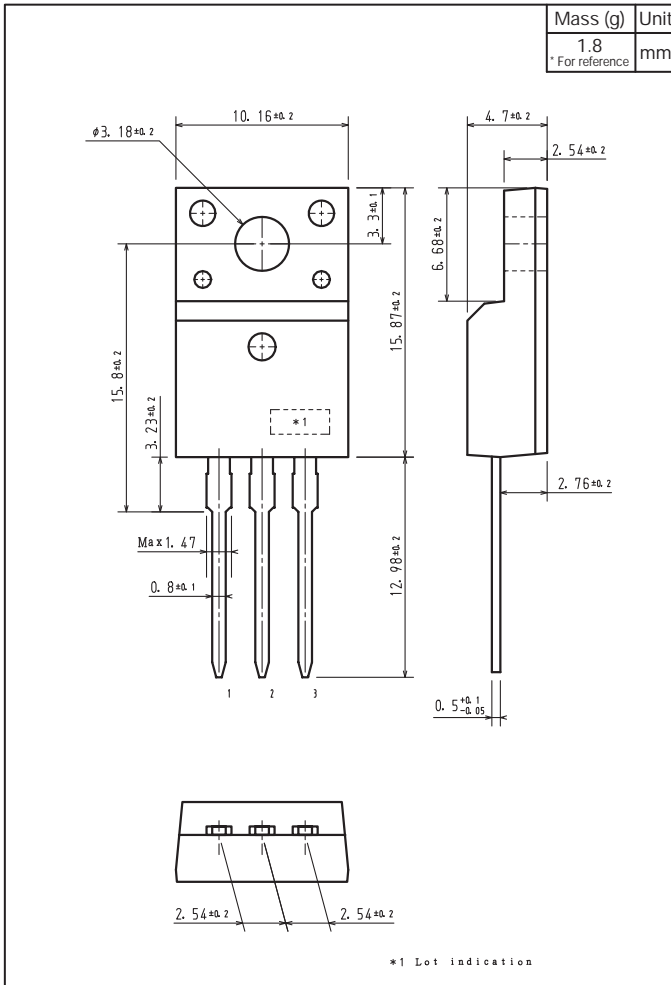
The LEAD FREE * description shows that the surface treatment of the terminal is lead free.

Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A

BFL4001

Outline Drawing

BFL4001-1E



Note on usage : Since the BFL4001 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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