

SEMITRANS® 6

Superfast NPT-IGBT Module

SKM 100GD063DL

Features

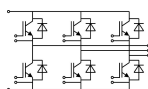
- Si structure (NPT IGBT)
- $V_{CE(sat)}$ with positive temperature coefficient
- High short circuit capability, self limiting to $6 \times I_C$

Typical Applications*

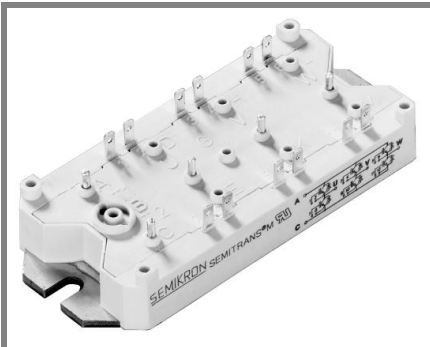
- Switched mode power supplies
- Three phase inverters for AC motor speed control
- For $f_{sw} > 10$ kHz

Absolute Maximum Ratings		$T_{case} = 25^\circ\text{C}$, unless otherwise specified		
Symbol	Conditions	Values	Units	
IGBT				
V_{CES}	$T_j = 25^\circ\text{C}$	600	V	
I_C	$T_j = 150^\circ\text{C}$	$T_c = 25^\circ\text{C}$	130	A
		$T_c = 80^\circ\text{C}$	95	A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$	200	A	
V_{GES}		± 20	V	
t_{psc}	$V_{CC} = 300$ V; $V_{GE} \leq 20$ V; $T_j = 125^\circ\text{C}$ $V_{CES} < 600$ V	10	μs	
Inverse Diode				
I_F	$T_j = 150^\circ\text{C}$	$T_c = 25^\circ\text{C}$	100	A
		$T_c = 80^\circ\text{C}$	75	A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$	200	A	
I_{FSM}	$t_p = 10$ ms; sin. $T_j = 150^\circ\text{C}$	720	A	
Module				
$I_{t(RMS)}$			A	
T_{vj}		- 40 ... +150	$^\circ\text{C}$	
T_{stg}		- 40 ... +125	$^\circ\text{C}$	
V_{isol}	AC, 1 min.	2500	V	

Characteristics		$T_{case} = 25^\circ\text{C}$, unless otherwise specified				
Symbol	Conditions	min.	typ.	max.	Units	
IGBT						
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 3$ mA	4,5	5,5	6,5	V	
I_{CES}	$V_{GE} = 0$ V, $V_{CE} = V_{CES}$ $T_j = 25^\circ\text{C}$		0,15	0,45	mA	
V_{CE0}			$T_j = 25^\circ\text{C}$	1,05	V	
			$T_j = 125^\circ\text{C}$	1	V	
r_{CE}	$V_{GE} = 15$ V		$T_j = 25^\circ\text{C}$	10,5	m Ω	
			$T_j = 125^\circ\text{C}$	14	m Ω	
$V_{CE(sat)}$	$I_{Cnom} = 100$ A, $V_{GE} = 15$ V		$T_j = 25^\circ\text{C}_{chiplev.}$	2,1	2,5	V
			$T_j = 125^\circ\text{C}_{chiplev.}$	2,4	2,8	V
C_{ies}	$V_{CE} = 25$, $V_{GE} = 0$ V	$f = 1$ MHz		5,6	nF	
C_{oes}				0,6	nF	
C_{res}				0,4	nF	
Q_G	$V_{GE} = 0$ V...15V		240		nC	
$t_{d(on)}$	$R_{Gon} = 10$ Ω	$V_{CC} = 300$ V $I_C = 100$ A		50	ns	
t_r				40	ns	
E_{on}				4	mJ	
$t_{d(off)}$	$R_{Goff} = 10$ Ω	$T_j = 125^\circ\text{C}$ $V_{GE} = \pm 15$ V		300	ns	
t_f				35	ns	
E_{off}				3	mJ	
$R_{th(j-c)}$	per IGBT			0,27	K/W	



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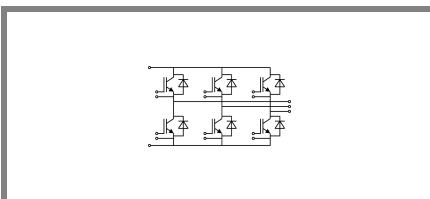
Typical Applications*

- Switched mode power supplies
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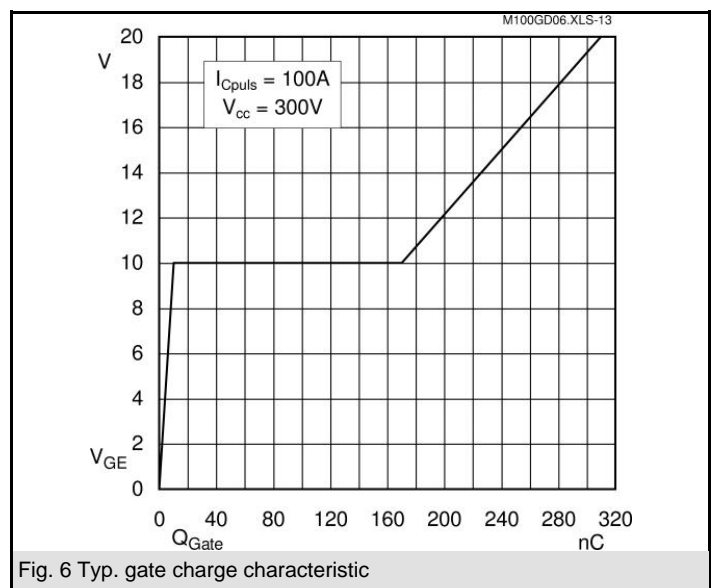
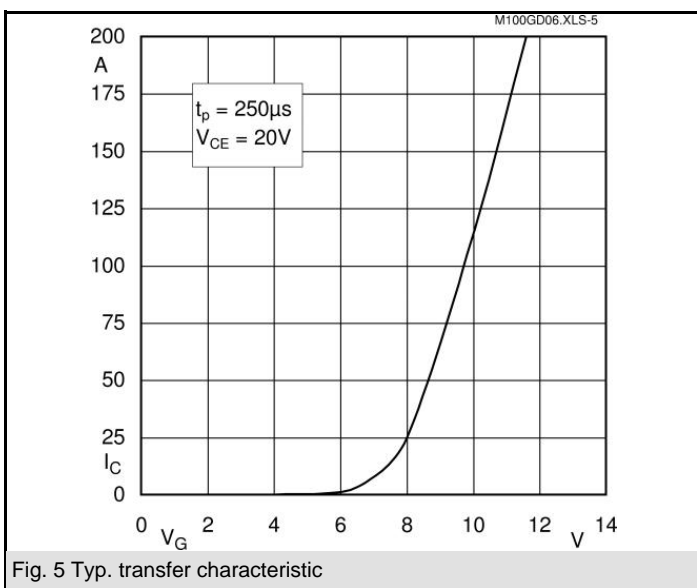
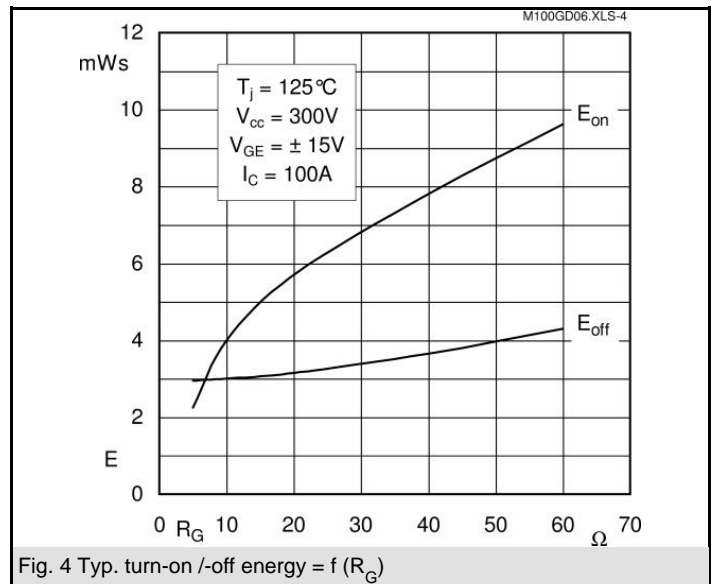
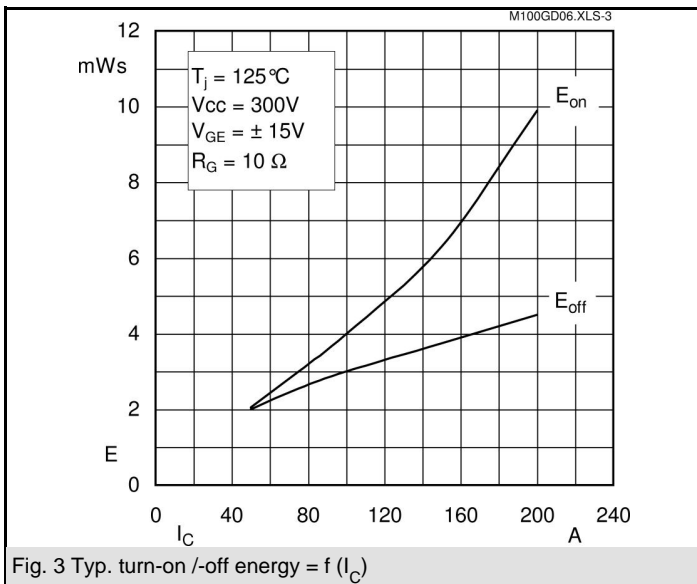
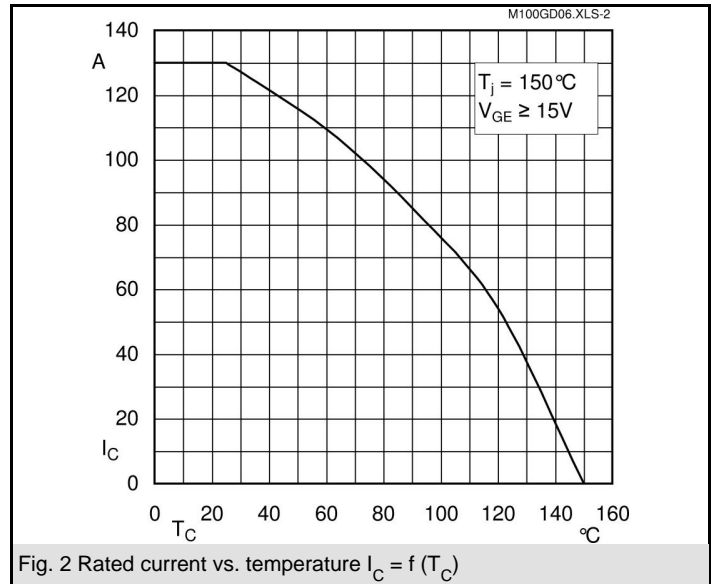
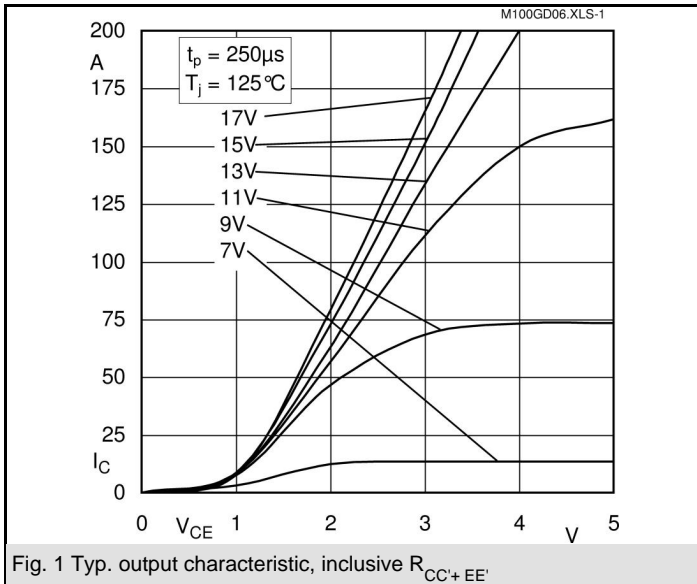
Characteristics		min.	typ.	max.	Units
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 100$ A; $V_{GE} = 0$ V		1,55	1,9	V
	$T_j = 25$ °C _{chiplev.}				V
	$T_j = 125$ °C _{chiplev.}		1,55		V
V_{F0}	$T_j = 25$ °C			0,9	V
r_F	$T_j = 25$ °C			10	mΩ
I_{RRM}	$I_F = 100$ A		8		A
Q_{rr}	$di/dt = 1000$ A/μs		44		μC
E_{rr}	$V_{GE} = -15$ V; $V_{CC} = 600$ V		1,5		mJ
$R_{th(j-c)D}$	per diode			0,6	K/W
Module					
L_{CE}				60	nH
$R_{th(c-s)}$	per module			0,05	K/W
M_s	to heat sink M5	4		5	Nm
w				175	g

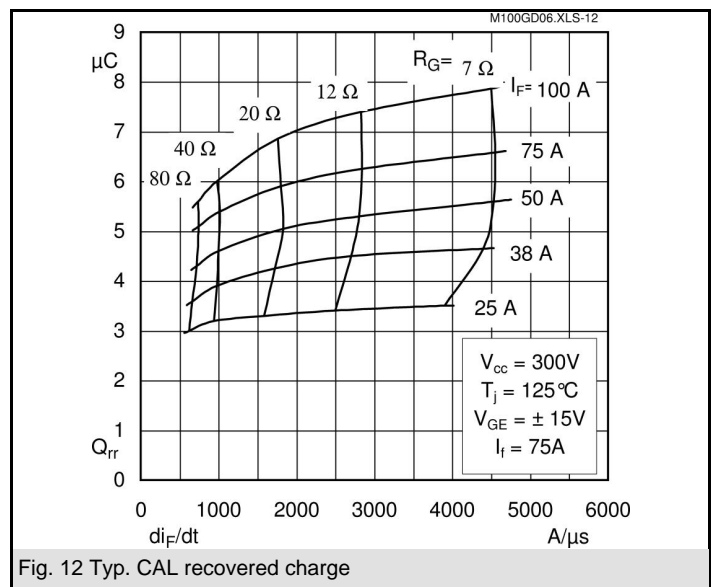
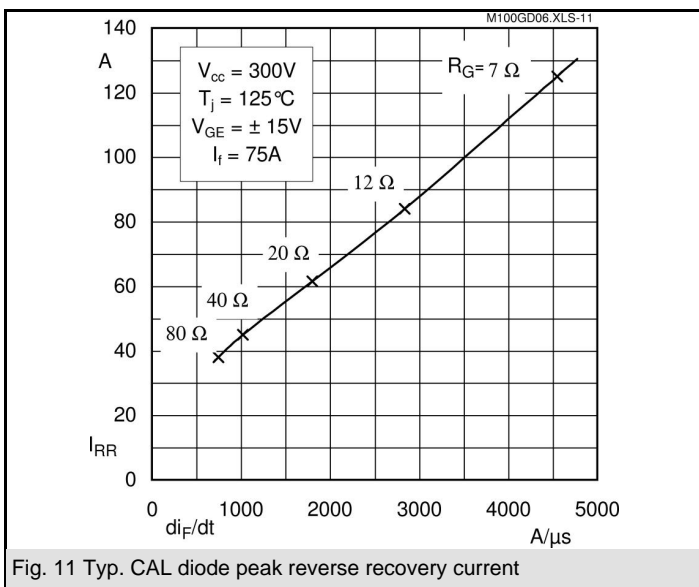
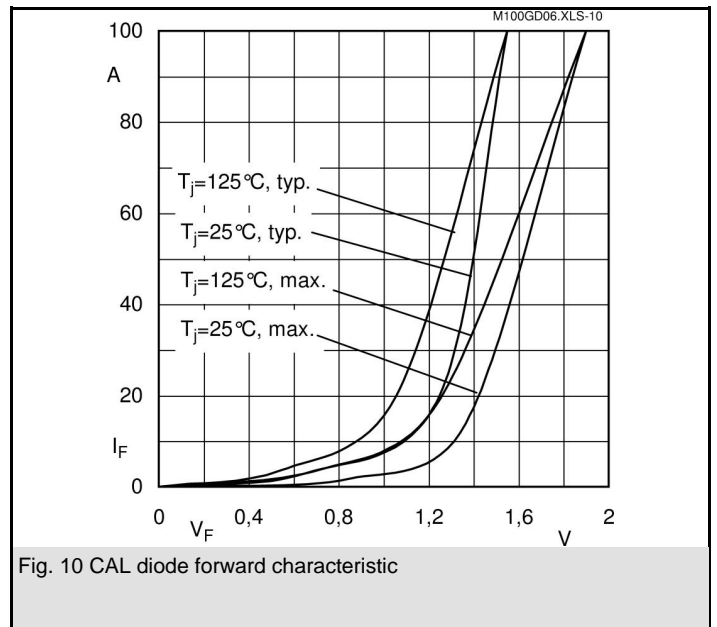
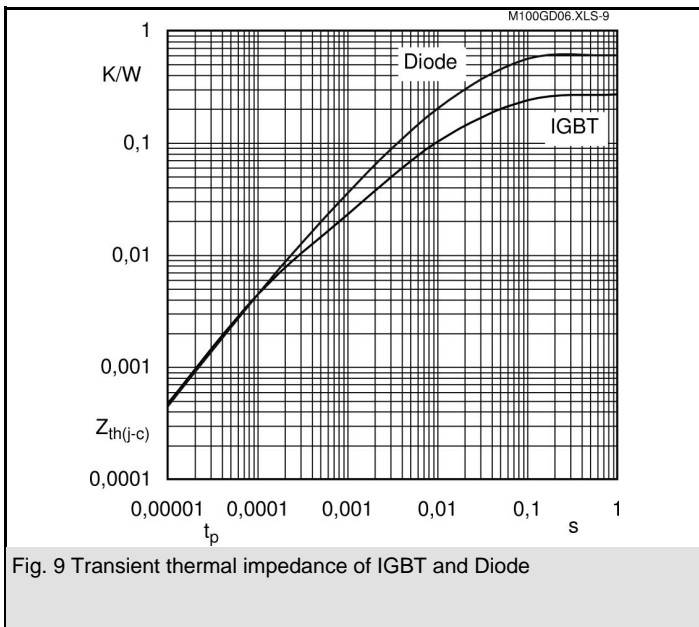
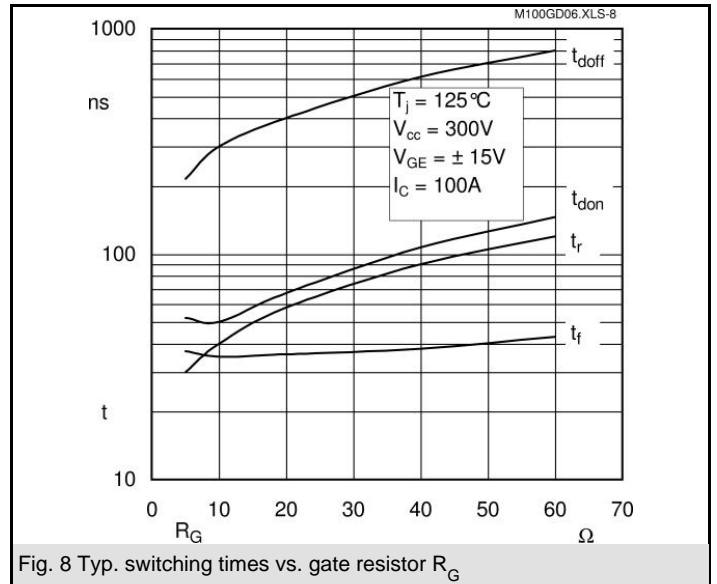
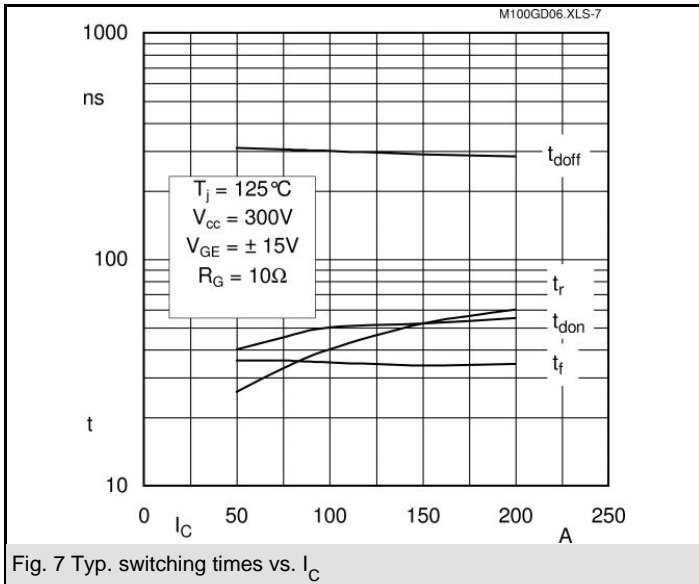
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our personal.



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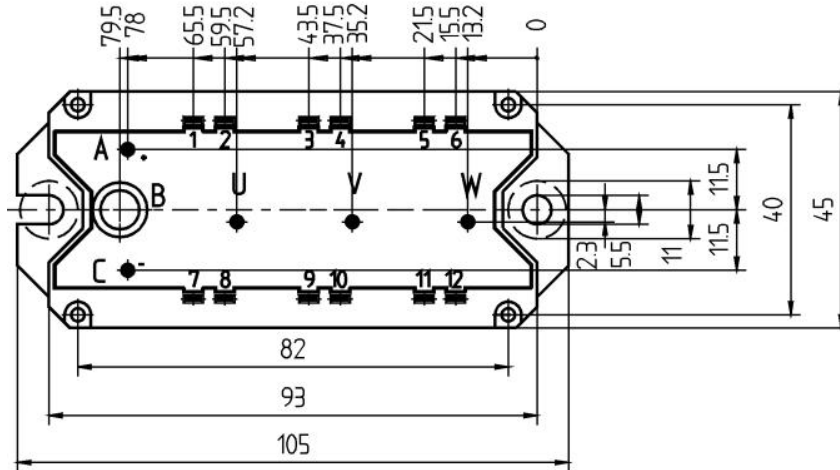
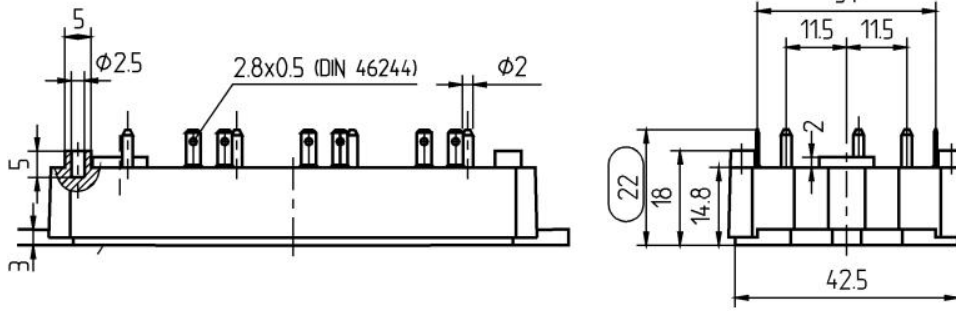


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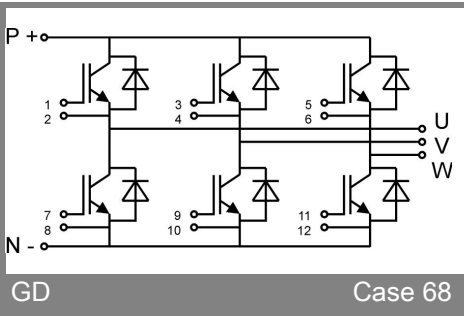
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