
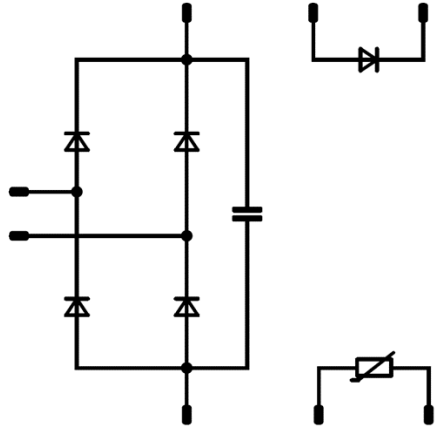




Vincotech

<i>flowCON 1</i>	1200 V / 60 A
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;">Features</div> <ul style="list-style-type: none"> 1200V Ultra-Fast Si-Diode Integrated Bypass Diode 	<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;">flow 1 housing</div> 
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;">Target applications</div> <ul style="list-style-type: none"> Charging Stations Power Supply Welding & Cutting 	<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;">Schematic</div> 
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;">Types</div> <ul style="list-style-type: none"> 10-PY120RA060VH-LJ92I08Y 	

Maximum Ratings

$T_j = 25\text{ °C}$, unless otherwise specified

Parameter	Symbol	Condition	Value	Unit
Rectifier Diode				
Peak repetitive reverse voltage	V_{RRM}		1200	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	50	A
Repetitive peak forward current	I_{FRM}		120	A
Surge (non-repetitive) forward current	I_{FSM}	50 Hz Single Half Sine Wave $t_p = 10\text{ ms}$ $T_j = 45\text{ °C}$	460	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	78	W
Maximum junction temperature	T_{jmax}		175	°C



Vincotech

Maximum Ratings

$T_j = 25\text{ °C}$, unless otherwise specified

Parameter	Symbol	Condition	Value	Unit
ByPass Diode				
Peak repetitive reverse voltage	V_{RRM}		1800	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	75	A
Surge (non-repetitive) forward current	I_{FSM}	50 Hz Single Half Sine Wave $t_p = 10\text{ ms}$ $T_j = 150\text{ °C}$	740	A
Surge current capability	I_{2t}		2740	A ² s
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	83	W
Maximum junction temperature	T_{jmax}		150	°C

Capacitor (DC)

Maximum DC voltage	V_{MAX}		1000	V
Operation Temperature	T_{op}		-55...+125	°C

Module Properties

Thermal Properties

Storage temperature	T_{stg}		-40...+125	°C
Operation temperature under switching condition	T_{jop}		-40...(T _{jmax} - 25)	°C

Isolation Properties

Isolation voltage	V_{isol}	DC Test Voltage* $t_p = 2\text{ s}$	6000	V
		AC Voltage $t_p = 1\text{ min}$	2500	V
Creepage distance			min 12,7	mm
Clearance			7,59	mm
Comparative Tracking Index	CTI		> 200	

*100 % tested in production



Vincotech

Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
		V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{DS} [V]	I_C [A] I_D [A]	I_F [A]	T_j [°C]	Min	Typ	Max	

Rectifier Diode

Static

Forward voltage	V_F			60	25 125 150		2,00 1,80 1,75	2,3		V
Reverse leakage current	I_R		1200		25			50		μA

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)					1,22			K/W
-------------------------------------	---------------	---------------------------------------	--	--	--	--	------	--	--	-----

ByPass Diode

Static

Forward voltage	V_F			80	25 125		1,18 1,15	1,23		V
Reverse leakage current	I_R		1800 1440		25 150			50 1500		μA

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)					0,84			K/W
-------------------------------------	---------------	---------------------------------------	--	--	--	--	------	--	--	-----

Capacitor (DC)

Capacitance	C						94			nF
Tolerance							-10		+10	%
Climatic category (IEC)							55/125/56			

Thermistor

Rated resistance	R				25		22			kΩ
Deviation of R_{100}	$\Delta_{R/R}$	$R_{100} = 1484$ Ω			100	-5		5		%
Power dissipation	P				25		5			mW
Power dissipation constant					25		1,5			mW/K
B-value	$B_{(25/50)}$	Tol. ±1 %			25		3962			K
B-value	$B_{(25/100)}$	Tol. ±1 %			25		4000			K
Vincotech NTC Reference									I	

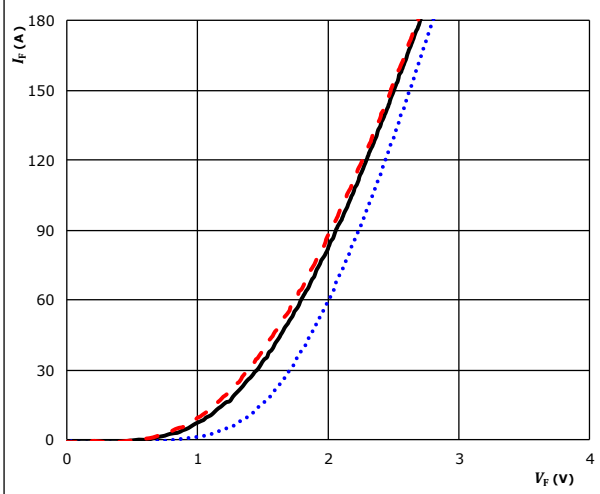


Rectifier Diode Characteristics

figure 1. FWD

Typical forward characteristics

$$I_F = f(V_F)$$

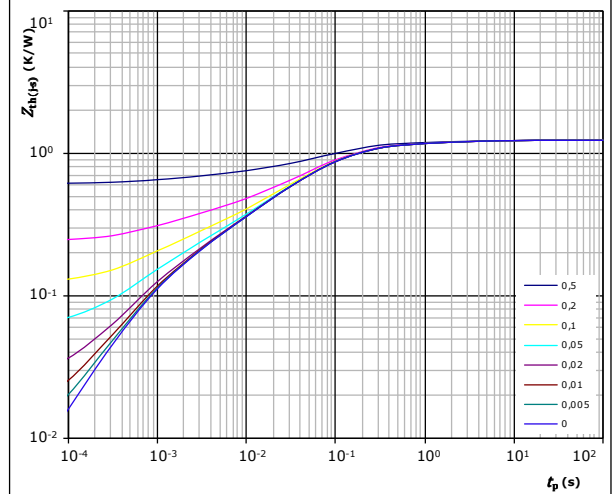


$t_p = 250 \mu s$
 T_j : 25 °C
 125 °C ———
 150 °C - - - -

figure 2. FWD

Transient thermal impedance as a function of pulse width

$$Z_{th(j-s)} = f(t_p)$$



$D = t_p / T$
 $R_{th(j-s)} = 1,22 \text{ K/W}$

FWD thermal model values

R (K/W)	τ (s)
5,22E-02	3,75E+00
1,27E-01	5,69E-01
5,36E-01	9,74E-02
2,81E-01	2,50E-02
1,22E-01	4,48E-03
9,68E-02	8,20E-04

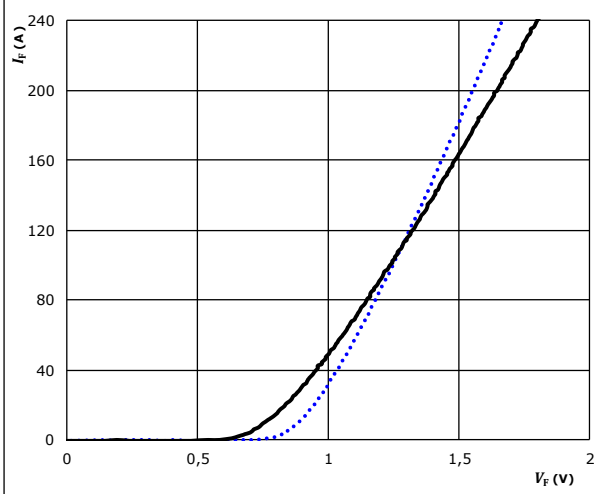


ByPass Diode Characteristics

figure 1. FWD

Typical forward characteristics

$$I_F = f(V_F)$$

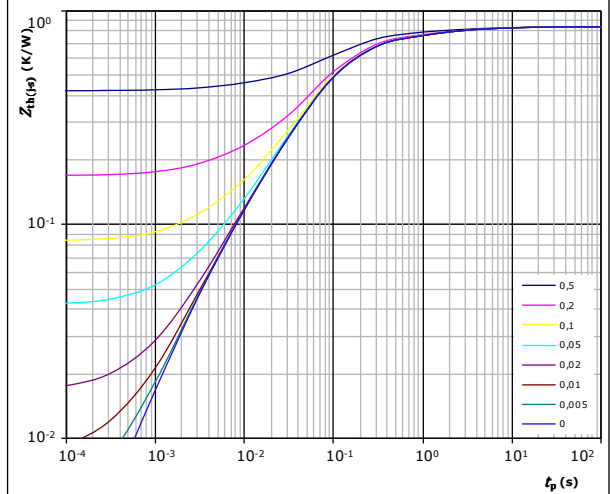


$t_p = 250 \mu s$
 $T_j: 25 \text{ }^\circ\text{C}$ (dotted blue line)
 $125 \text{ }^\circ\text{C}$ (solid black line)

figure 2. FWD

Transient thermal impedance as a function of pulse width

$$Z_{th(j-s)} = f(t_p)$$



$D = t_p / T$
 $R_{th(j-s)} = 0,84 \text{ K/W}$
FWD thermal model values

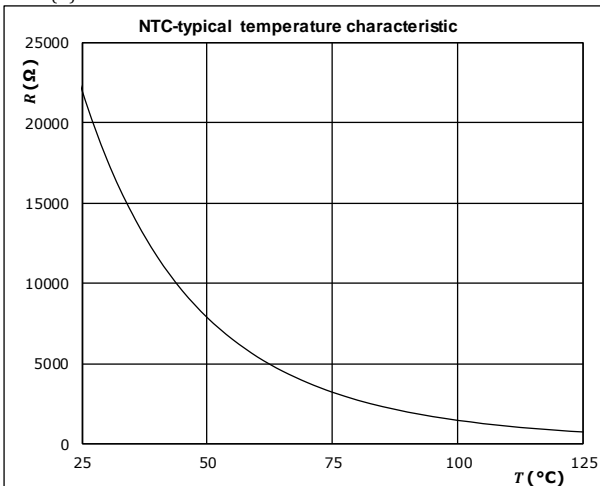
$R \text{ (K/W)}$	$\tau \text{ (s)}$
4,69E-02	5,96E+00
1,08E-01	8,86E-01
3,74E-01	1,33E-01
2,69E-01	4,72E-02
4,14E-02	4,67E-03

Thermistor Characteristics

figure 1. Thermistor

Typical NTC characteristic as a function of temperature

$$R = f(T)$$





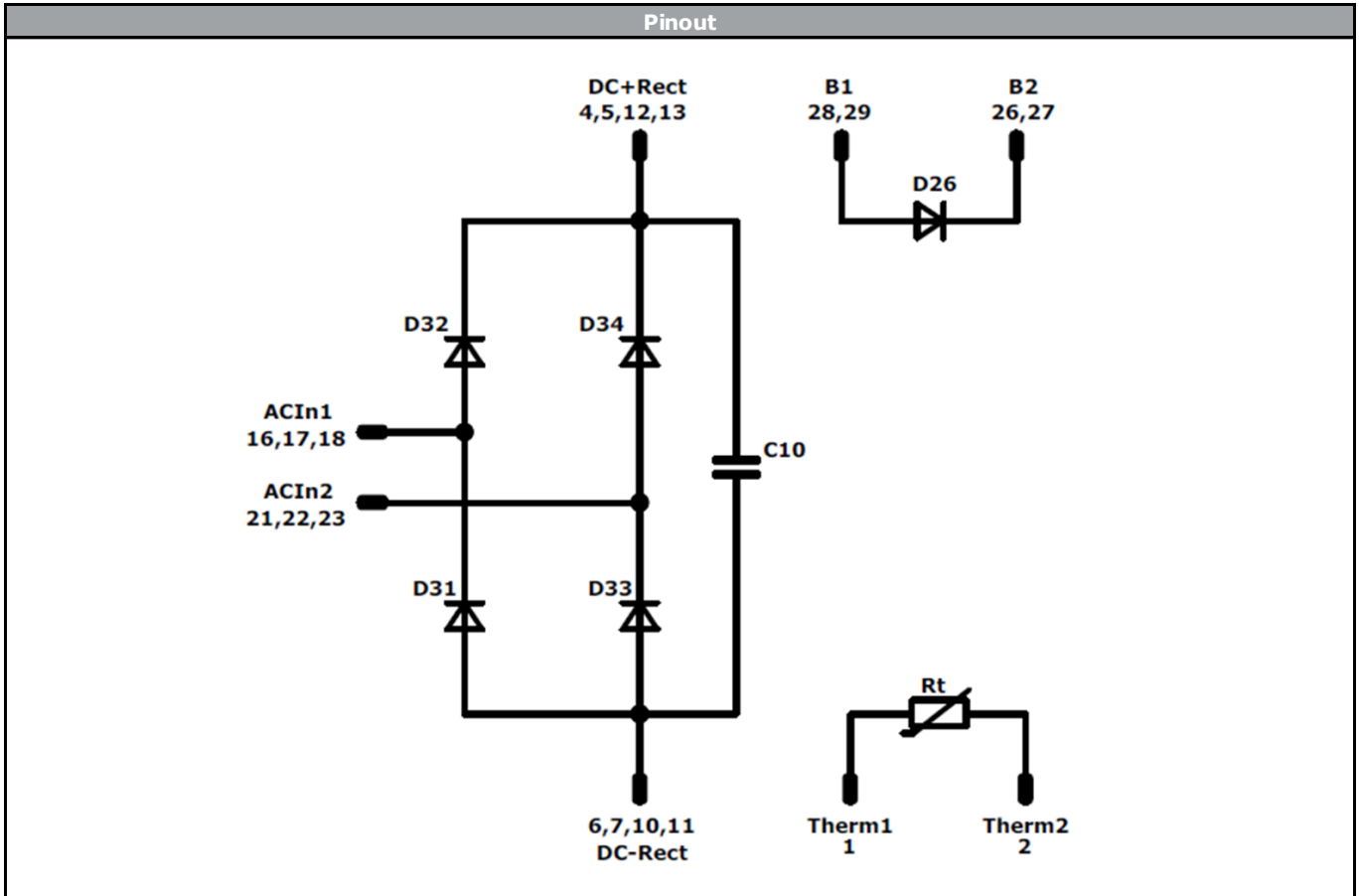
Vincotech

Ordering Code & Marking																																
Version			Ordering Code																													
without thermal paste			10-PY120RA060VH-LJ92I08Y																													
<table border="1"> <thead> <tr> <th rowspan="2">Text</th> <th colspan="2">Name</th> <th>Date code</th> <th>UL & VIN</th> <th>Lot</th> <th>Serial</th> </tr> <tr> <td colspan="2">NN-NNNNNNNNNNNNNN-TTTTTWW</td> <td>WWYY</td> <td>UL VIN</td> <td>LLLLL</td> <td>SSSS</td> </tr> </thead> <tbody> <tr> <td rowspan="2">Datamatrix</td> <th>Type&Ver</th> <th>Lot number</th> <th>Serial</th> <th>Date code</th> <td></td> <td></td> </tr> <tr> <td>TTTTTWW</td> <td>LLLLL</td> <td>SSSS</td> <td>WWYY</td> <td></td> <td></td> </tr> </tbody> </table>							Text	Name		Date code	UL & VIN	Lot	Serial	NN-NNNNNNNNNNNNNN-TTTTTWW		WWYY	UL VIN	LLLLL	SSSS	Datamatrix	Type&Ver	Lot number	Serial	Date code			TTTTTWW	LLLLL	SSSS	WWYY		
Text	Name		Date code	UL & VIN	Lot	Serial																										
	NN-NNNNNNNNNNNNNN-TTTTTWW		WWYY	UL VIN	LLLLL	SSSS																										
Datamatrix	Type&Ver	Lot number	Serial	Date code																												
	TTTTTWW	LLLLL	SSSS	WWYY																												

Outline																																																																																																																																			
<table border="1"> <thead> <tr> <th colspan="4">Pin table</th> </tr> <tr> <th>Pin</th> <th>X</th> <th>Y</th> <th>Function</th> </tr> </thead> <tbody> <tr><td>1</td><td>52,2</td><td>3</td><td>Therm1</td></tr> <tr><td>2</td><td>52,2</td><td>0</td><td>Therm2</td></tr> <tr><td>3</td><td colspan="3">Not assembled</td></tr> <tr><td>4</td><td>44,2</td><td>2,7</td><td>DC+Rect</td></tr> <tr><td>5</td><td>44,2</td><td>0</td><td>DC+Rect</td></tr> <tr><td>6</td><td>34,8</td><td>0</td><td>DC-Rect</td></tr> <tr><td>7</td><td>32,1</td><td>0</td><td>DC-Rect</td></tr> <tr><td>8</td><td colspan="3">Not assembled</td></tr> <tr><td>9</td><td colspan="3">Not assembled</td></tr> <tr><td>10</td><td>12,1</td><td>0</td><td>DC-Rect</td></tr> <tr><td>11</td><td>9,4</td><td>0</td><td>DC-Rect</td></tr> <tr><td>12</td><td>0</td><td>0</td><td>DC+Rect</td></tr> <tr><td>13</td><td>0</td><td>2,7</td><td>DC+Rect</td></tr> <tr><td>14</td><td colspan="3">Not assembled</td></tr> <tr><td>15</td><td colspan="3">Not assembled</td></tr> <tr><td>16</td><td>6,8</td><td>28,2</td><td>ACin1</td></tr> <tr><td>17</td><td>9,5</td><td>28,2</td><td>ACin1</td></tr> <tr><td>18</td><td>12,2</td><td>28,2</td><td>ACin1</td></tr> <tr><td>19</td><td colspan="3">Not assembled</td></tr> <tr><td>20</td><td colspan="3">Not assembled</td></tr> <tr><td>21</td><td>28,8</td><td>28,2</td><td>ACin2</td></tr> <tr><td>22</td><td>31,5</td><td>28,2</td><td>ACin2</td></tr> <tr><td>23</td><td>34,2</td><td>28,2</td><td>ACin2</td></tr> <tr><td>24</td><td colspan="3">Not assembled</td></tr> <tr><td>25</td><td colspan="3">Not assembled</td></tr> <tr><td>26</td><td>49,5</td><td>28,2</td><td>B2</td></tr> <tr><td>27</td><td>52,2</td><td>28,2</td><td>B2</td></tr> <tr><td>28</td><td>52,2</td><td>13,9</td><td>B1</td></tr> <tr><td>29</td><td>52,2</td><td>11,2</td><td>B1</td></tr> <tr><td>30</td><td colspan="3">Not assembled</td></tr> </tbody> </table>				Pin table				Pin	X	Y	Function	1	52,2	3	Therm1	2	52,2	0	Therm2	3	Not assembled			4	44,2	2,7	DC+Rect	5	44,2	0	DC+Rect	6	34,8	0	DC-Rect	7	32,1	0	DC-Rect	8	Not assembled			9	Not assembled			10	12,1	0	DC-Rect	11	9,4	0	DC-Rect	12	0	0	DC+Rect	13	0	2,7	DC+Rect	14	Not assembled			15	Not assembled			16	6,8	28,2	ACin1	17	9,5	28,2	ACin1	18	12,2	28,2	ACin1	19	Not assembled			20	Not assembled			21	28,8	28,2	ACin2	22	31,5	28,2	ACin2	23	34,2	28,2	ACin2	24	Not assembled			25	Not assembled			26	49,5	28,2	B2	27	52,2	28,2	B2	28	52,2	13,9	B1	29	52,2	11,2	B1	30	Not assembled		
Pin table																																																																																																																																			
Pin	X	Y	Function																																																																																																																																
1	52,2	3	Therm1																																																																																																																																
2	52,2	0	Therm2																																																																																																																																
3	Not assembled																																																																																																																																		
4	44,2	2,7	DC+Rect																																																																																																																																
5	44,2	0	DC+Rect																																																																																																																																
6	34,8	0	DC-Rect																																																																																																																																
7	32,1	0	DC-Rect																																																																																																																																
8	Not assembled																																																																																																																																		
9	Not assembled																																																																																																																																		
10	12,1	0	DC-Rect																																																																																																																																
11	9,4	0	DC-Rect																																																																																																																																
12	0	0	DC+Rect																																																																																																																																
13	0	2,7	DC+Rect																																																																																																																																
14	Not assembled																																																																																																																																		
15	Not assembled																																																																																																																																		
16	6,8	28,2	ACin1																																																																																																																																
17	9,5	28,2	ACin1																																																																																																																																
18	12,2	28,2	ACin1																																																																																																																																
19	Not assembled																																																																																																																																		
20	Not assembled																																																																																																																																		
21	28,8	28,2	ACin2																																																																																																																																
22	31,5	28,2	ACin2																																																																																																																																
23	34,2	28,2	ACin2																																																																																																																																
24	Not assembled																																																																																																																																		
25	Not assembled																																																																																																																																		
26	49,5	28,2	B2																																																																																																																																
27	52,2	28,2	B2																																																																																																																																
28	52,2	13,9	B1																																																																																																																																
29	52,2	11,2	B1																																																																																																																																
30	Not assembled																																																																																																																																		
<p>center of press-fit pinhead for connection parameter see the handling instruction</p> <p>12,93 ±0,1 16,2 ±0,5</p> <p>14,1</p> <p>26,1</p> <p>Tolerance of pinpositions: ±0,5mm at the end of pins Dimension of coordinate axis is only offset without tolerance</p>																																																																																																																																			



Vincotech



Identification					
ID	Component	Voltage	Current	Function	Comment
D31, D32, D33, D34	Rectifier	1200 V	60 A	Rectifier Diode	
D26	Rectifier	1800 V	80 A	ByPass Diode	
C10	Capacitor	1000 V		Capacitor (DC)	
Rt	Thermistor			Thermistor	




Vincotech

Packaging instruction			
Standard packaging quantity (SPQ) 100	>SPQ	Standard	<SPQ Sample

Handling instruction
Handling instructions for <i>flow 1</i> packages see vincotech.com website.

Package data
Package data for <i>flow 1</i> packages see vincotech.com website.

UL recognition and file number
This device is certified according to UL 1557 standard, UL file number E192116. For more information see vincotech.com website. 

Document No.:	Date:	Modification:	Pages
10-PY120RA060VH-LJ92I08Y-D1-14	30 Apr. 2019		

DISCLAIMER

The information, specifications, procedures, methods and recommendations herein (together "information") are presented by Vincotech to reader in good faith, are believed to be accurate and reliable, but may well be incomplete and/or not applicable to all conditions or situations that may exist or occur. Vincotech reserves the right to make any changes without further notice to any products to improve reliability, function or design. No representation, guarantee or warranty is made to reader as to the accuracy, reliability or completeness of said information or that the application or use of any of the same will avoid hazards, accidents, losses, damages or injury of any kind to persons or property or that the same will not infringe third parties rights or give desired results. It is reader's sole responsibility to test and determine the suitability of the information and the product for reader's intended use.

LIFE SUPPORT POLICY

Vincotech products are not authorised for use as critical components in life support devices or systems without the express written approval of Vincotech.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in labelling can be reasonably expected to result in significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.