


### Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

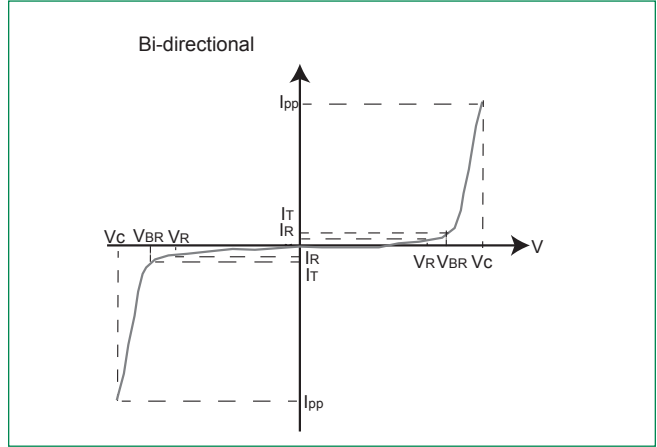
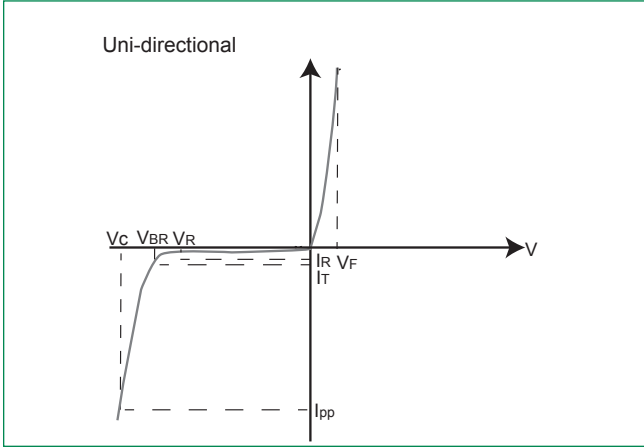
Part Number (Uni)	Part Number (Bi)	Reverse Stand off Voltage V <sub>R</sub> (Volts)	Breakdown Voltage V <sub>BR</sub> (Volts) @ I <sub>T</sub>		Test Current I <sub>T</sub> (mA)	Maximum Clamping Voltage V <sub>C</sub> @ I <sub>pp</sub> (V)	Maximum Peak Pulse Current I <sub>pp</sub> (A)	Maximum Reverse Leakage I <sub>R</sub> @ V <sub>R</sub> (μA)	Agency Approval 
			Min.	Max.					
P6KE6.8A	P6KE6.8CA	5.80	6.45	7.14	10	10.5	58.1	1000	X
P6KE7.5A	P6KE7.5CA	6.40	7.13	7.88	10	11.3	54.0	500	X
P6KE8.2A	P6KE8.2CA	7.02	7.79	8.61	10	12.1	50.4	200	X
P6KE9.1A	P6KE9.1CA	7.78	8.65	9.55	1	13.4	45.5	50	X
P6KE10A	P6KE10CA	8.55	9.50	10.50	1	14.5	42.1	10	X
P6KE11A	P6KE11CA	9.40	10.50	11.60	1	15.6	39.1	5	X
P6KE12A	P6KE12CA	10.20	11.40	12.60	1	16.7	36.5	5	X
P6KE13A	P6KE13CA	11.10	12.40	13.70	1	18.2	33.5	1	X
P6KE15A	P6KE15CA	12.80	14.30	15.80	1	21.2	28.8	1	X
P6KE16A	P6KE16CA	13.60	15.20	16.80	1	22.5	27.1	1	X
P6KE18A	P6KE18CA	15.30	17.10	18.90	1	25.2	24.2	1	X
P6KE20A	P6KE20CA	17.10	19.00	21.00	1	27.7	22.0	1	X
P6KE22A	P6KE22CA	18.80	20.90	23.10	1	30.6	19.9	1	X
P6KE24A	P6KE24CA	20.50	22.80	25.20	1	33.2	18.4	1	X
P6KE27A	P6KE27CA	23.10	25.70	28.40	1	37.5	16.3	1	X
P6KE30A	P6KE30CA	25.60	28.50	31.50	1	41.4	14.7	1	X
P6KE33A	P6KE33CA	28.20	31.40	34.70	1	45.7	13.3	1	X
P6KE36A	P6KE36CA	30.80	34.20	37.80	1	49.9	12.2	1	X
P6KE39A	P6KE39CA	33.30	37.10	41.00	1	53.9	11.3	1	X
P6KE43A	P6KE43CA	36.80	40.90	45.20	1	59.3	10.3	1	X
P6KE47A	P6KE47CA	40.20	44.70	49.40	1	64.8	9.4	1	X
P6KE51A	P6KE51CA	43.60	48.50	53.60	1	70.1	8.7	1	X
P6KE56A	P6KE56CA	47.80	53.20	58.80	1	77.0	7.9	1	X
P6KE62A	P6KE62CA	53.00	58.90	65.10	1	85.0	7.2	1	X
P6KE68A	P6KE68CA	58.10	64.60	71.40	1	92.0	6.6	1	X
P6KE75A	P6KE75CA	64.10	71.30	78.80	1	103.0	5.9	1	X
P6KE82A	P6KE82CA	70.10	77.90	86.10	1	113.0	5.4	1	X
P6KE91A	P6KE91CA	77.80	86.50	95.50	1	125.0	4.9	1	X
P6KE100A	P6KE100CA	85.50	95.00	105.00	1	137.0	4.5	1	X
P6KE110A	P6KE110CA	94.00	105.00	116.00	1	152.0	4.0	1	X
P6KE120A	P6KE120CA	102.00	114.00	126.00	1	165.0	3.7	1	X
P6KE130A	P6KE130CA	111.00	124.00	137.00	1	179.0	3.4	1	X
P6KE150A	P6KE150CA	128.00	143.00	158.00	1	207.0	2.9	1	X
P6KE160A	P6KE160CA	136.00	152.00	168.00	1	219.0	2.8	1	X
P6KE170A	P6KE170CA	145.00	162.00	179.00	1	234.0	2.6	1	X
P6KE180A	P6KE180CA	154.00	171.00	189.00	1	246.0	2.5	1	X
P6KE200A	P6KE200CA	171.00	190.00	210.00	1	274.0	2.2	1	X
P6KE220A	P6KE220CA	185.00	209.00	231.00	1	328.0	1.9	1	X
P6KE250A	-	214.00	237.00	263.00	1	344.0	1.8	1	X
	P6KE250CA*	214.00	237.00	263.00	1	344.0	2.4	1	X
P6KE300A	-	256.00	285.00	315.00	1	414.0	1.5	1	X
	P6KE300CA*	256.00	285.00	315.00	1	414.0	2.0	1	X
P6KE350A*	P6KE350CA*	300.00	332.00	368.00	1	482.0	1.7	1	X
P6KE400A*	P6KE400CA*	342.00	380.00	420.00	1	548.0	1.5	1	X
P6KE440A*	P6KE440CA*	376.00	418.00	462.00	1	602.0	1.4	1	X
P6KE480A*	P6KE480CA*	408.00	456.00	504.00	1	658.0	1.3	1	X
P6KE510A*	P6KE510CA*	434.00	485.00	535.00	1	698.0	1.2	1	X
P6KE530A*	P6KE530CA*	451.00	503.50	556.50	1	725.0	1.2	1	X
P6KE540A*	P6KE540CA*	460.00	513.00	567.00	1	740.0	1.1	1	X
P6KE550A*	P6KE550CA*	468.00	522.50	577.50	1	760.0	1.1	1	X
P6KE600A*	P6KE600CA*	512.00	570.00	630.00	1	828.0	1.0	1	-

For bidirectional type having V<sub>o</sub> of 10 volts and less, the I<sub>o</sub> limit is double.

For parts without A, the V<sub>BR</sub> is ± 10% and V<sub>C</sub> is 5% higher than with A parts, the parts without A are currently available, but not recommended for new designs. The parts with A are preferred.

For stack-die parts, use \* to label the part number.

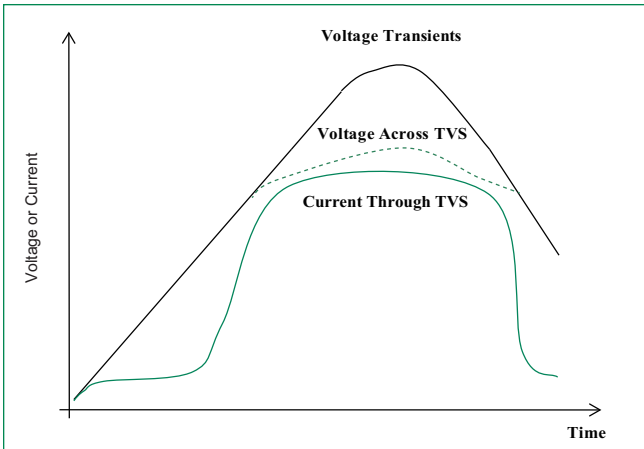
**I-V Curve Characteristics**



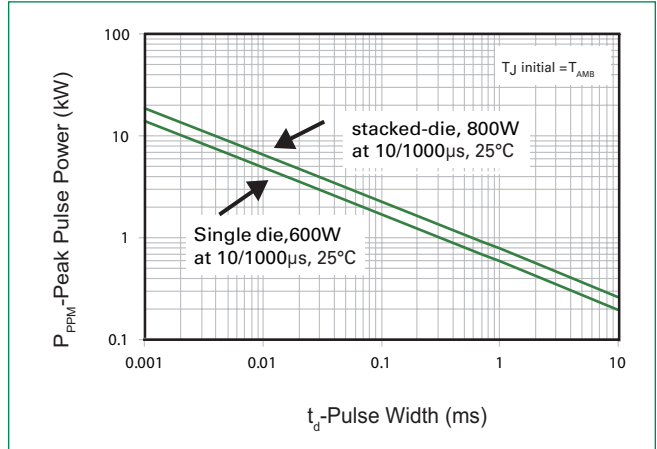
- $P_{PPM}$  Peak Pulse Power Dissipation** – Max power dissipation
- $V_R$  Stand-off Voltage** – Maximum voltage that can be applied to the TVS without operation
- $V_{BR}$  Breakdown Voltage** – Maximum voltage that flows thogh the TVS at a specified test current ( $I_T$ )
- $V_C$  Clamping Voltage** – Peak voltage measured across the TVS at a specified  $I_{ppm}$  (peak impulse current)
- $I_R$  Reverse Leakage Current** – Current measured at  $V_R$
- $V_F$  Forward Voltage Drop for Uni-directional**

**Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$  unless otherwise noted)**

**Figure 1 - TVS Transients Clamping Waveform**

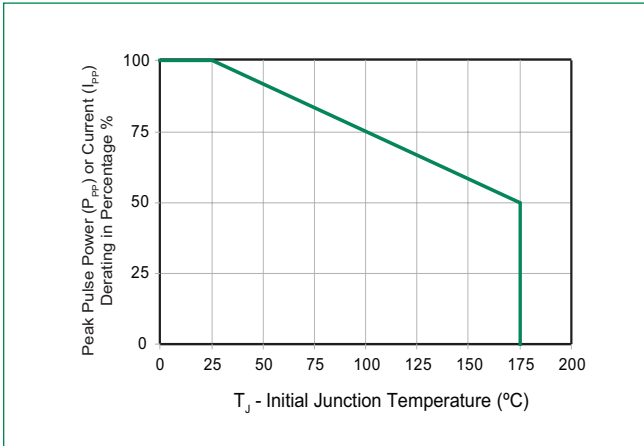


**Figure 2 - Peak Pulse Power Rating**

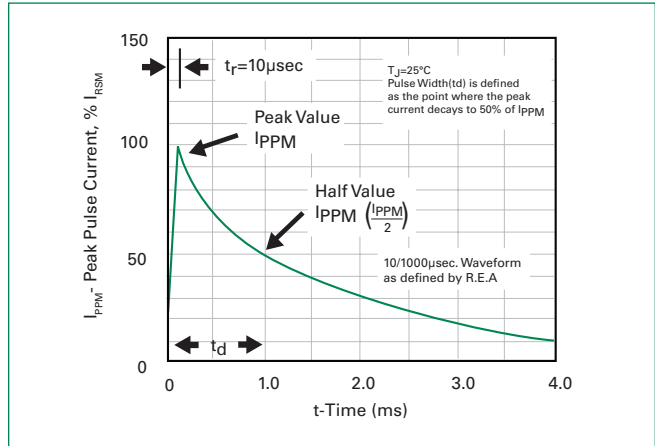


**Ratings and Characteristic Curves** ( $T_A=25^\circ\text{C}$  unless otherwise noted) (Continued)

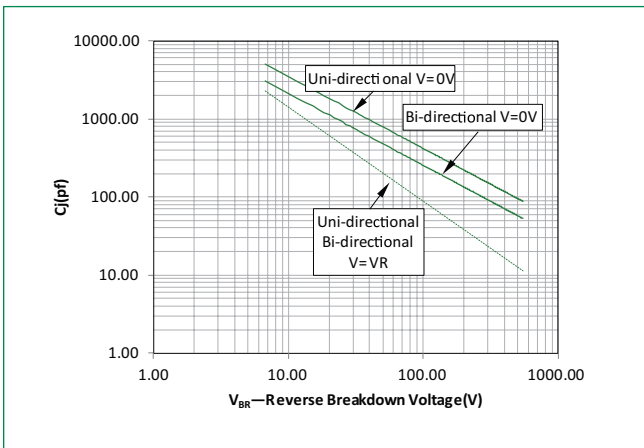
**Figure 3 - Peak Pulse Power Derating Curve**



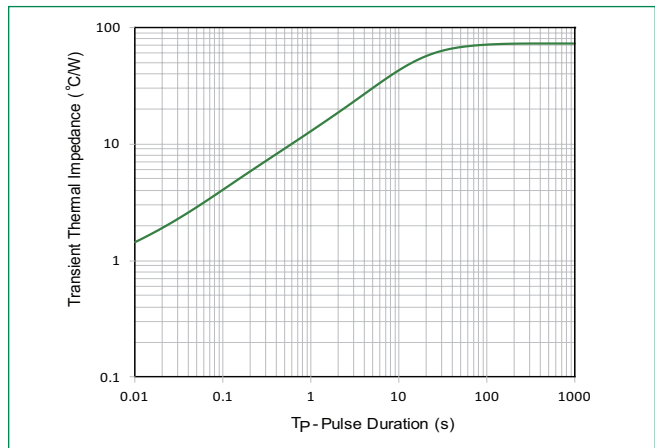
**Figure 4 - Pulse Waveform**



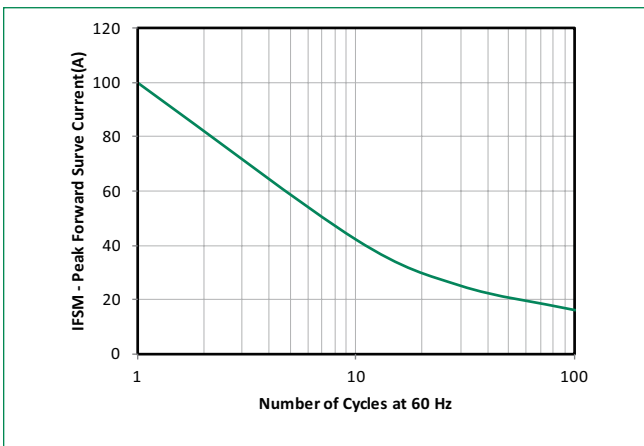
**Figure 5 - Typical Junction Capacitance**



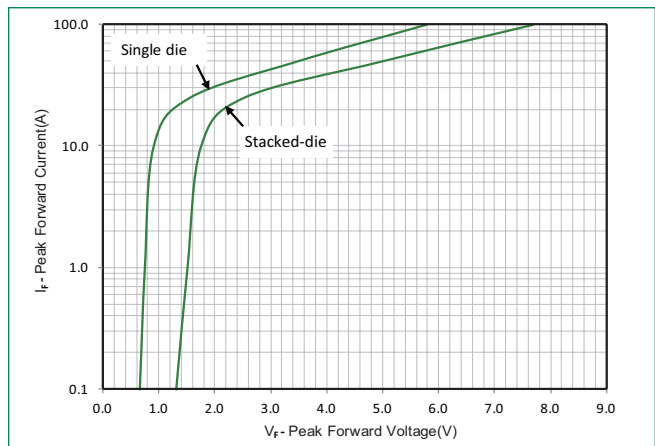
**Figure 6 - Typical Transient Thermal Impedance**



**Figure 7 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only**

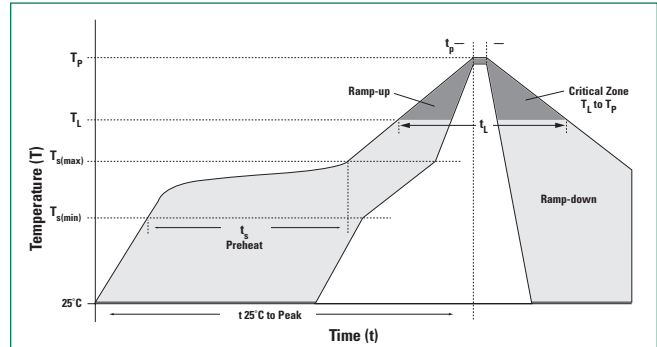


**Figure 8 - Peak Forward Voltage Drop vs Peak Forward Current (Typical Values)**



**Soldering Parameters**

<b>Reflow Condition</b>		Lead-free assembly
<b>Pre Heat</b>	- Temperature Min ( $T_{s(min)}$ )	150°C
	- Temperature Max ( $T_{s(max)}$ )	200°C
	- Time (min to max) ( $t_2$ )	60 – 120 secs
<b>Average ramp up rate (Liquidus Temp (<math>T_L</math>) to peak)</b>		3°C/second max
<b><math>T_{s(max)}</math> to <math>T_L</math> - Ramp-up Rate</b>		3°C/second max
<b>Reflow</b>	- Temperature ( $T_L$ ) (Liquidus)	217°C
	- Time (min to max) ( $t_1$ )	60 – 150 seconds
<b>Peak Temperature (<math>T_p</math>)</b>		260 <sup>+0/-5</sup> °C
<b>Time within 5°C of actual peak Temperature (<math>t_p</math>)</b>		30 Seconds Max
<b>Ramp-down Rate</b>		6°C/second max
<b>Time 25°C to peak Temperature (<math>T_p</math>)</b>		8 minutes Max.
<b>Do not exceed</b>		260°C



**Flow/Wave Soldering (Solder Dipping)**

<b>Peak Temperature :</b>	265°C
<b>Dipping Time :</b>	10 seconds
<b>Soldering :</b>	1 time

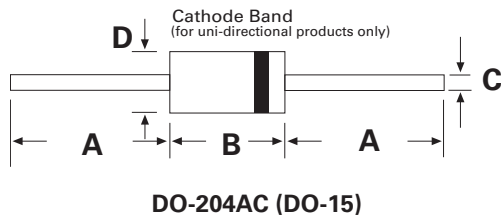
**Physical Specifications C**

<b>Weight</b>	0.015oz., 0.4g
<b>Case</b>	JEDEC DO-204AC (DO-15) molded plastic body over passivated junction.
<b>Polarity</b>	Color band denotes the cathode except Bipolar.
<b>Terminal</b>	Matte Tin axial leads, solderable per JESD22-B102.

**Environmental Specifications**

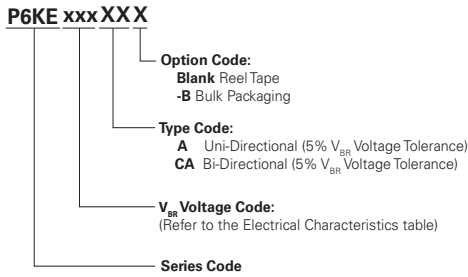
<b>High Temp. Storage</b>	JESD22-A103
<b>HTRB</b>	JESD22-A108
<b>Temperature Cycling</b>	JESD22-A104
<b>H3TRB</b>	JESD22-A101
<b>RSH</b>	JESD22-B106

**Dimensions**

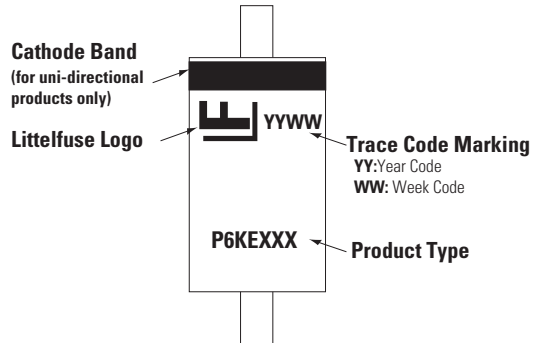


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
<b>A</b>	1.000	-	25.40	-
<b>B</b>	0.230	0.300	5.80	7.60
<b>C</b>	0.028	0.034	0.71	0.86
<b>D</b>	0.104	0.140	2.60	3.60

### Part Numbering System



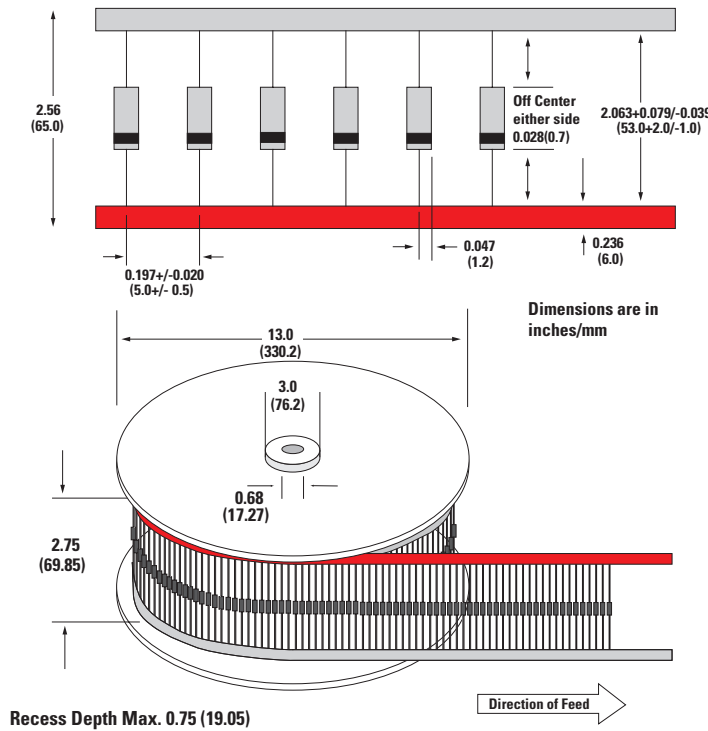
### Part Marking System



### Packaging

Part Number	Component Package	Quantity	Packaging Option	Packaging Specification
P6KExxxXX	DO-204AC	4000	Tape & Reel	EIA STD RS-296
P6KExxxXX-B	DO-204AC	1000	BULK	Littelfuse Spec.

### Tape and Reel Specification



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## Littelfuse:

[P6KE510A](#) [P6KE110CA](#) [P6KE11CA](#) [P6KE170](#) [P6KE24](#) [P6KE300CA](#) [P6KE68C](#) [P6KE220A](#) [P6KE10CA-B](#)  
[P6KE13A](#) [P6KE15A-B](#) [P6KE18A](#) [P6KE200C](#) [P6KE56CA](#) [P6KE12A-B](#) [P6KE150A-B](#) [P6KE250C](#) [P6KE110A](#)  
[P6KE160](#) [P6KE16CA](#) [P6KE200A](#) [P6KE24CA](#) [P6KE36A](#) [P6KE6.8CA](#) [P6KE400A](#) [P6KE51CA](#) [P6KE350CA](#)  
[P6KE120A](#) [P6KE200](#) [P6KE20CA](#) [P6KE440A](#) [P6KE68](#) [P6KE7.5](#) [P6KE7.5CA-B](#) [P6KE10](#) [P6KE160A](#) [P6KE170CA](#)  
[P6KE220C](#) [P6KE68CA](#) [P6KE130CA-B](#) [P6KE24A-B](#) [P6KE440CA-B](#) [P6KE440CA-TB](#) [P6KE170CA-B](#) [P6KE600A](#)  
[P6KE600CA](#) [P6KE600CA-B](#) [P6KE530CA](#) [P6KE130A](#) [P6KE56](#) [P6KE68A](#) [P6KE91C](#) [P6KE130](#) [P6KE20C](#)  
[P6KE27C](#) [P6KE12CA](#) [P6KE33CA](#) [P6KE16](#) [P6KE18](#) [P6KE20A-B](#) [P6KE36](#) [P6KE82CA](#) [P6KE180A](#) [P6KE51C](#)  
[P6KE9.1A](#) [P6KE150A](#) [P6KE160CA](#) [P6KE47A-B](#) [P6KE7.5CA](#) [P6KE24C](#) [P6KE30C](#) [P6KE33CA-B](#) [P6KE75C](#)  
[P6KE56A](#) [P6KE6.8CA-B](#) [P6KE62A](#) [P6KE62CA](#) [P6KE10A](#) [P6KE15C](#) [P6KE350](#) [P6KE250CA](#) [P6KE62C](#) [P6KE100A](#)  
[P6KE10C](#) [P6KE22CA](#) [P6KE350A](#) [P6KE550C](#) [P6KE180CA](#) [P6KE20](#) [P6KE22A](#) [P6KE7.5A](#) [P6KE550CA](#) [P6KE9.1](#)  
[P6KE27A](#) [P6KE30](#) [P6KE33](#) [P6KE47A](#) [P6KE43CA-B](#) [P6KE43](#) [P6KE47](#)