

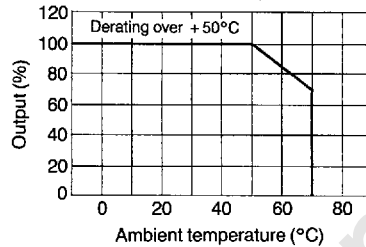
# Power Converters

## DC TO DC CONVERTERS

### TEMPERATURE RANGE

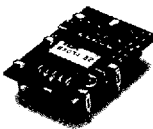
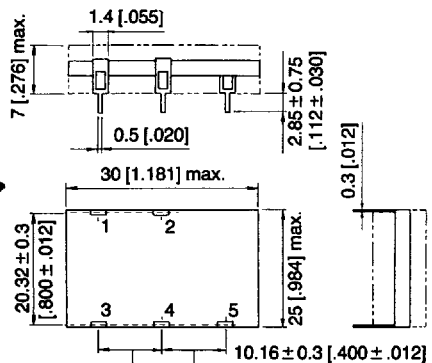
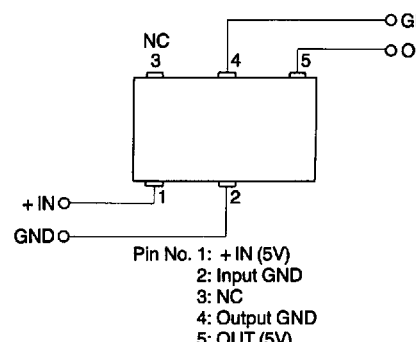
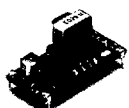
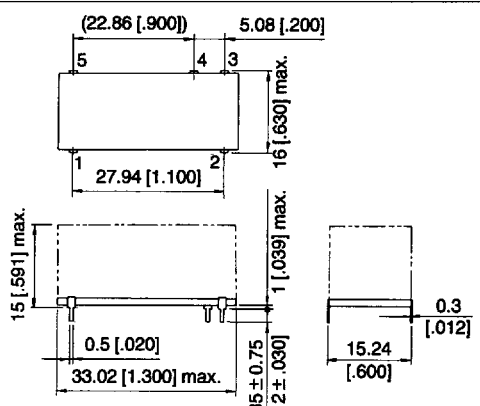
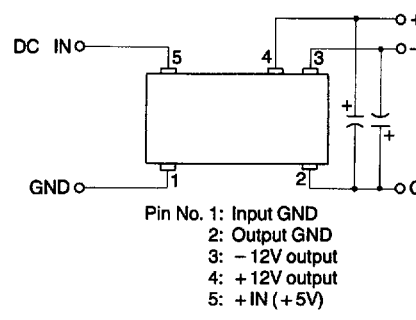

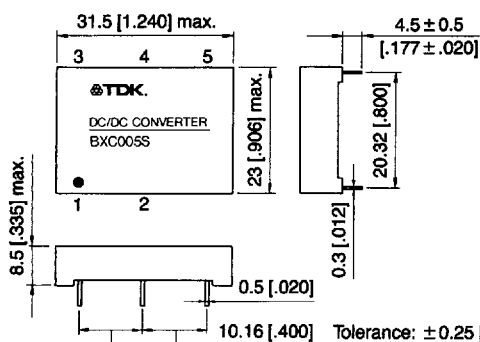
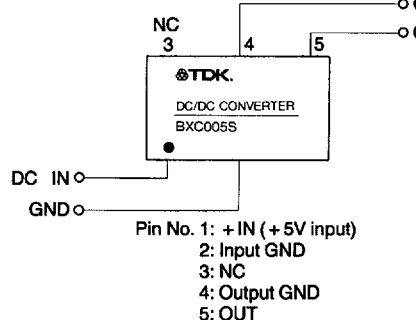
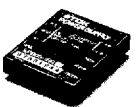
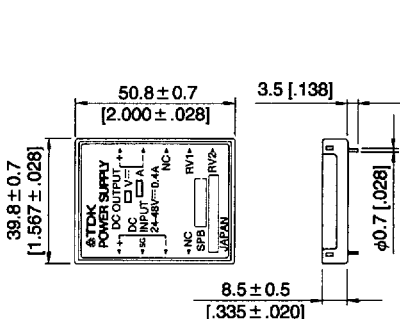
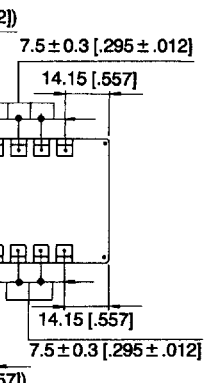
Series	Operating	Storage
RZC, RZ/SZC, SZ/CRX, CRZ	0 to 70	-40 to +85
BX034, BXC	-5 to +50	-30 to +85
MSX019	0 to 60	-20 to +85
SPB	0 to 60	-25 to +80
DEL, DEF	-10 to +70	-20 to +70

### DERATING CURVE (RZC, RZ, SZC, SZ)



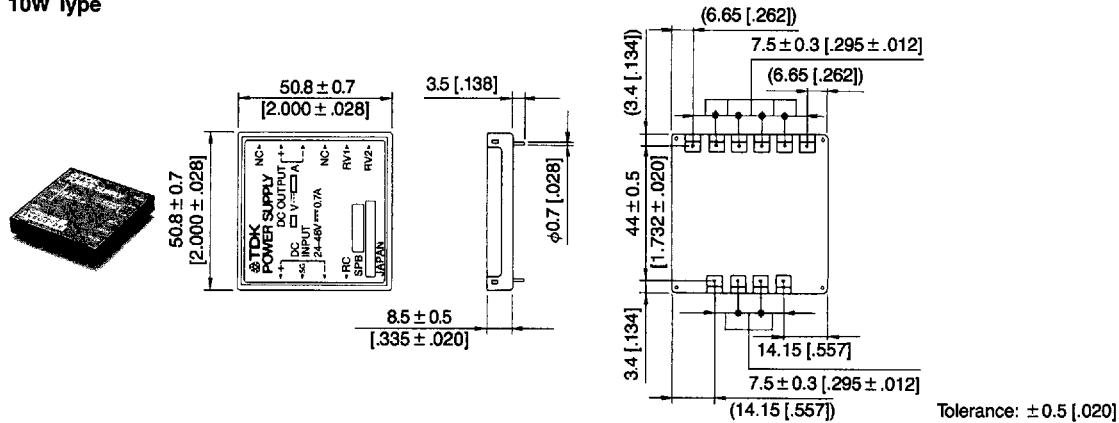
Series	Shapes and dimensions (mm) [inches]	Connections	Weight (g)	Fig.
RZC, RZ	<p>Dimensions: 19.56 [.770] max, 7.8 [.307] max, 5.08 [.200] max, 3 [.118] min, 2.54 [.100], 15.24 [.600], 0.5 [.020], 7.9 to 8.9 [.311 to .350], 0.2 to 0.3 [.008 to .012]. Tolerance: ±0.25 [.010]</p>	<p>Pin No. 1: Vin (+5Vin) 7: GND 8: -Vout (+V single output NC) 9: +Vout (-V single output NC) 14: NC</p>	1.6 typ.	1
SZC, SZ	<p>Dimensions: 12.57 [.495] max, 7.62 [.300], 11.58 [.456] max, 4.7 [.185] max, 2.54 [.100], 11.58 max, 0.43 [.017], 1.6 [.063]. Tolerance: ±0.25 [.010]</p>	<p>Pin No. 1: +IN (+5V) 4: GND 5: -OUT (+Vout NC) 6: +OUT (-Vout NC) 8: NC</p>	1.8 max.	2
CRX	<p>Dimensions: 12.5 [.492] max, 7.8 [.307] max, 5.08 [.200] max, 3 [.118] min, 0.5 [.020], 2.54 [.100], 7.62 [.300], 0.2 to 0.3 [.008 to .012], 7.9 to 8.9 [.311 to .350]. Tolerance: ±0.25 [.010]</p>	<p>Pin No. 1: Vin (+5V input) 4: GND 5: -V output (+V single output NC) 6: +V output (-V single output NC) 8: NC</p>	1 typ.	3
CRZ	<p>Dimensions: 19.56 [.770] max, 7.8 [.307] max, 5.08 [.200] max, 3 [.118] min, 2.54 [.100], 15.24 [.600], 0.5 [.020], 7.9 to 8.9 [.311 to .350], 0.2 to 0.3 [.008 to .012]. Tolerance: ±0.25 [.010]</p>	<p>Pin No. 1: Vin (+5V input) 7: GND 8: -V output (+V single output NC) 9: +V output (-V single output NC) 14: NC</p>	1.6 typ.	4

# Power Converters

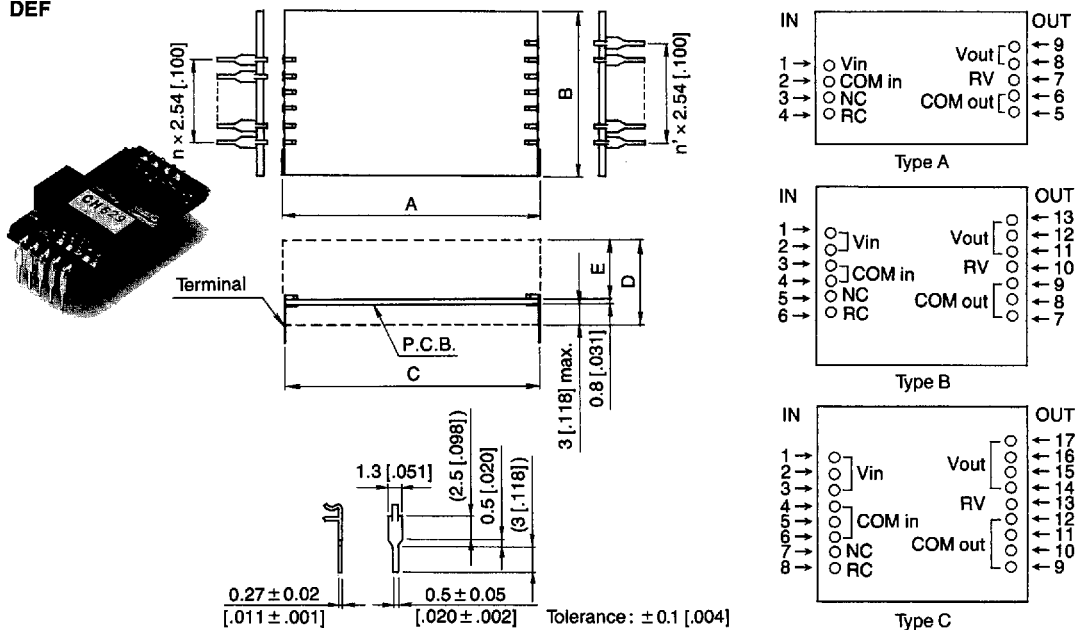
Series	Shapes and dimensions (mm) [inches]	Connections	Weight (g)	Fig.
<b>BX034</b> 	 <p>7 [276] max. 1.4 [055] 0.5 [020] 2.85 ± 0.75 [.112 ± .030] 30 [1.181] max. 20.32 ± 0.3 [800 ± .012] 25 [.984] max. 0.3 [.012] 10.16 ± 0.3 [.400 ± .012] Tolerance: ± 0.25 [.010]</p>	 <p>NC 3 4 5 + IN 1 GND 2 Pin No. 1: + IN (5V) 2: Input GND 3: NC 4: Output GND 5: OUT (5V)</p>	3.7 typ.	5
<b>MSX019</b> 	 <p>(22.86 [.900]) 5.08 [.200] 16 [.630] max. 27.94 [1.100] 15 [.591] max. 0.5 [.020] 33.02 [1.300] max. 2.85 ± 0.75 [.112 ± .030] 1 [.039] max. 0.3 [.012] 15.24 [.600] Tolerance: ± 0.25 [.010]</p>	 <p>DC IN 5 GND 1 + OUT - OUT + + GND Pin No. 1: Input GND 2: Output GND 3: - 12V output 4: + 12V output 5: + IN (+5V)</p>	4 typ.	6
<b>BXC</b> 	 <p>31.5 [1.240] max. 4.5 ± 0.5 [.177 ± .020] 23 [.906] max. 20.32 [.800] 8.5 [.335] max. 0.5 [.020] 10.16 [.400] Tolerance: ± 0.25 [.010]</p>	 <p>NC 3 4 5 DC IN 1 GND 2 Pin No. 1: + IN (+5V input) 2: Input GND 3: NC 4: Output GND 5: OUT</p>	9.5 typ.	7
<b>SPB 5W type</b> 	 <p>50.8 ± 0.7 [2.000 ± .028] 3.5 [.138] 39.8 ± 0.7 [1.567 ± .028] 8.5 ± 0.5 [.335 ± .020] φ0.7 [.028]</p>	 <p>(6.65 [.262]) 7.5 ± 0.3 [.295 ± .012] 14.15 [.557] 3.4 [.134] 3.4 [.134] 14.15 [.557] 7.5 ± 0.3 [.295 ± .012] Tolerance: ± 0.5 [.020]</p>	30 max.	8

# Power Converters

Series	Shapes and dimensions (mm) [inches]	Connections	Weight (g)	Fig.
SPB 10W Type			40 max.	8



DEL series	DEF series	Shapes and dimensions (mm) [inches]	Connections	Weight (g)	Fig.
				6 to 15 max.	9



Part No.	DEL series	DEF series	A ± 1 [.039]	B ± 1 [.039]	C ± 0.5 [.020]	D max.	E max.	n	n'	Connection
DEL05-0R5P			25.7 [1.012]	19 [.748]	25.4 [1.000]	10 [.394]	6.2 [.244]	3 [.118]	4 [.157]	Type A
DEL03-1R0P DEL05-1R0P DEL12-0R2P DEL24-0R1P		DEF03-1R0P	33.3 [1.311]	19 [.748]	33 [1.299]	11 [.433]	7.2 [.283]	3 [.118]	4 [.157]	Type A
DEL03-2R0P DEL05-2R0P DEL12-0R4P DEL24-0R2P		DEF023-2R0P	33.3 [1.311]	25 [.984]	33 [1.299]	11 [.433]	7.2 [.283]	5 [.197]	6 [.236]	Type B
DEL03-3R0P DEL05-1R0N DEL05-3R0P DEL12-0R6P DEL12-0R6N DEL24-0R3P		DEF03-3R0P DEF05-0R6P* DEF05-0R6N DEF12-0R5P* DEF24-R25P*	38.4 [1.512]	25 [.984]	38.1 [1.500]	12.7 [.500]	8.9 [.350]	5 [.197]	6 [.236]	Type B
DEL12-0R8P DEL24-0R4P			38.4 [1.512]	31 [1.220]	38.1 [1.500]	11 [.433]	7.2 [.283]	7 [.276]	8 [.315]	Type C

\* Custom-made product

# Power Converters

Series	Maximum output power (W)	Input voltage (Vdc)	Output voltage (Vdc)	Output current (mA)	Features	Fig.
RZC	0.175 to 0.3	5 ± 0.5	+15, +12 -5, -12, -15, ±12, ±15	0 to 8 0 to 10 0 to 20 0 to 25 0 to 35 0 to 50	<ul style="list-style-type: none"> <li>• Transfer molded</li> <li>• Built-in smoothing capacitor</li> </ul>	1
RZ	0.175 to 0.3	5 ± 0.5	+15, +12 -5, -12, -15, ±12, ±15	0 to 8 0 to 10 0 to 20 0 to 25 0 to 35 0 to 50	<ul style="list-style-type: none"> <li>• Transfer molded</li> <li>• Without built-in smoothing capacitor</li> </ul>	1
SZC	0.3	5 ± 0.5	+15, +12, -12, -15	2 to 20 2 to 25	<ul style="list-style-type: none"> <li>• Surface mountable type</li> <li>• Transfer molded</li> <li>• Built-in smoothing capacitor</li> </ul>	2
SZ	0.25 to 0.3	5 ± 0.5	+15, +12, -5, -12, -15	0 to 20 0 to 25 0 to 50	<ul style="list-style-type: none"> <li>• Surface mountable type</li> <li>• Transfer molded</li> <li>• Without built-in smoothing capacitor</li> </ul>	2
CRX	0.25 0.30	5 ± 10%	-5 ± 0.4 +12 ± 0.5 -12 ± 0.5 +15 ± 0.6 -15 ± 0.6	0 to 50 0 to 25 0 to 25 0 to 20 0 to 20	<ul style="list-style-type: none"> <li>• Dual-in-line packaging type</li> <li>• Compact type</li> <li>• Available for automatic insertion machine</li> </ul>	3
CRZ	0.5 0.6	5 ± 10%	-5 ± 0.4 +12 ± 0.5 -12 ± 0.5 +15 ± 0.6 -15 ± 0.6 -24 ± 0.8	0 to 100 0 to 50 0 to 50 0 to 40 0 to 40 0 to 25	<ul style="list-style-type: none"> <li>• Dual-in-line packaging type</li> <li>• Built-in smoothing capacitor</li> <li>• Available for automatic insertion machine</li> </ul>	4
BX034	1.2	5 ± 0.25	5	40 to 225	<ul style="list-style-type: none"> <li>• Isolated primary and secondary</li> <li>• Built-in smoothing capacitor</li> </ul>	5
MSX019	1.2	5 ± 0.25	±12	5 to 50	<ul style="list-style-type: none"> <li>• Isolated primary and secondary</li> <li>• Without built-in smoothing capacitor</li> </ul>	6
BXC	1.2	5 ± 0.25	5, 12	20 to 100 40 to 225	<ul style="list-style-type: none"> <li>• Isolated primary and secondary</li> </ul>	7
SPB	5 to 10	20 to 56	5, 12, 15, 24	0.2 to 2.0	<ul style="list-style-type: none"> <li>• Thin type</li> <li>• Isolated primary and secondary</li> </ul>	8
DEL	2.5 to 15	6 to 15	+3.3, +5, -5, +12, -12, +24	1 to 3A 0.5 to 3A 1A 0.2 to 0.8A 0.6A 0.1 to 0.4A	<ul style="list-style-type: none"> <li>• With remote ON/OFF control terminal</li> <li>• Built-in over current protection circuit</li> <li>• Adjustable output voltage within ±10%</li> <li>• Compact and thin (12.7mm [.500 inches] height max.) type</li> </ul>	9
DEF	2.5 to 15	4.5 to 7.5	+3.3, +5, -5, +12, +24	1 to 3A 0.6A 0.5A 0.25A	<ul style="list-style-type: none"> <li>• With remote ON/OFF control terminal</li> <li>• Built-in over current protection circuit</li> <li>• Adjustable output voltage within ±10%</li> <li>• Compact and thin (12.7mm [.500 inches] height max.) type</li> </ul>	9