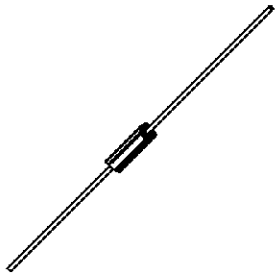
SGS-THOMSON MICROELECTRONICS

BZW06-5V8,B/376,B
BZW06P5V8,B/376,B

TRANSIL™

FEATURES

- PEAK PULSE POWER= 600 W @ 1ms
- STAND-OFF VOLTAGE RANGE : From 5V8 to 376 V
- UNI AND BIDIRECTIONAL TYPES
- LOW CLAMPING FACTOR
- FAST RESPONSE TIME
- UL RECOGNIZED



F126
(Plastic)

DESCRIPTION

Transil diodes provide high overvoltage protection by clamping action. Their instantaneous response to transients makes them particularly suited to protect voltage sensitive devices such as MOS Technology and low voltage supplied IC's.

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25°C)

Symbol	Parameter		Value	Unit
P_p	Peak pulse power dissipation		600	W
P	Power dissipation on infinite heatsink	T_{lead} = 75°C	1.7	W
T_{stg} T_j	Storage temperature range Maximum junction temperature		- 65 to + 175 175	°C °C
T_L	Maximum lead temperature for soldering during 10 s.		230	°C

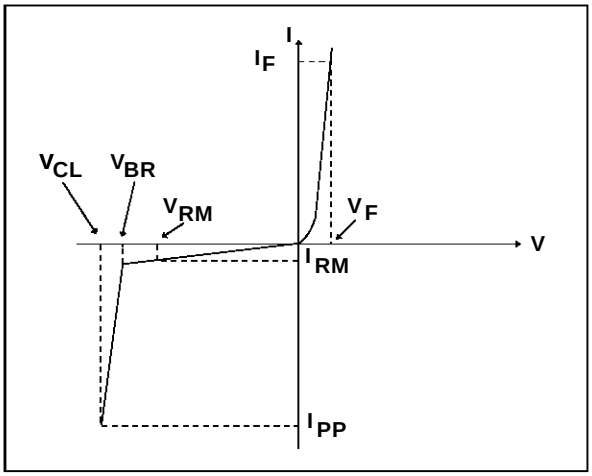
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th\ (j-l)}$	Junction to leads on infinite heatsink		60	°C/W
$R_{th\ (j-a)}$	Junction to ambiant on printed circuit.	L_{lead} = 10 mm	100	°C/W

ELECTRICAL CHARACTERISTICS

(T_{amb} = 25°C)

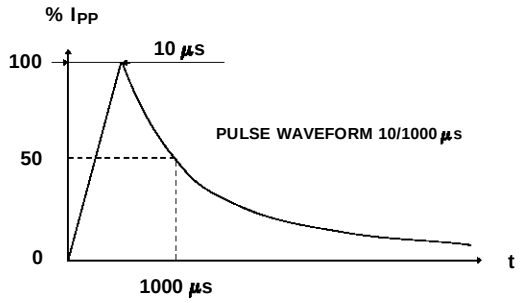
Symbol	Parameter
V_{RM}	Stand-off voltage
V_{BR}	Breakdown voltage
V_{CL}	Clamping voltage
I_{RM}	Leakage current @ VRM
I_{PP}	Peak pulse current
αT	Voltage temperature coefficient
V_F	Forward voltage drop V_F < 3.5V @ I_F = 50 A



Types		I_{RM} @ V_{RM} max		V_{BR} @ I_R min	nom	max		V_{CL} @ I_{PP} max 10/1000µs		V_{CL} @ I_{PP} max 8/20µs		αT max note3	C typ note4
					note2								
Unidirectional	Bidirectional	µA	V	V	V	V	mA	V	A	V	A	10^{-4}/°C	pF
BZW06P5V8	BZW06P5V8B	1000	5.8	6.45	6.8	7.48	10	10.5	57	13.4	298	5.7	4000
BZW06-5V8	BZW06-5V8B	1000	5.8	6.45	6.8	7.14	10	10.5	57	13.4	298	5.7	4000
BZW06P6V4	BZW06P6V4B	500	6.4	7.13	7.5	8.25	10	11.3	53	14.5	276	6.1	3700
BZW06-6V4	BZW06-6V4B	500	6.4	7.13	7.5	7.88	10	11.3	53	14.5	276	6.1	3700
BZW06P7V0	BZW06P7V0B	200	7.02	7.79	8.2	9.02	10	12.1	50	15.5	258	6.5	3400
BZW06-7V0	BZW06-7V0B	200	7.02	7.79	8.2	8.61	10	12.1	50	15.5	258	6.5	3400
BZW06P7V8	BZW06P7V8B	50	7.78	8.65	9.1	10	1	13.4	45	17.1	234	6.8	3100
BZW06-7V8	BZW06-7V8B	50	7.78	8.65	9.1	9.55	1	13.4	45	17.1	234	6.8	3100
BZW06P8V5	BZW06P8V5B	10	8.55	9.5	10	11	1	14.5	41	18.6	215	7.3	2800
BZW06-8V5	BZW06-8V5B	10	8.55	9.5	10	10.5	1	14.5	41	18.6	215	7.3	2800
BZW06P9V4	BZW06P9V4B	5	9.4	10.5	11	12.1	1	15.6	38	20.3	197	7.5	2500
BZW06-9V4	BZW06-9V4B	5	9.4	10.5	11	11.6	1	15.6	38	20.3	197	7.5	2500
BZW06P10	BZW06-9V4B	5	10.2	11.4	12	13.2	1	16.7	36	21.7	184	7.8	2300
BZW06-10	BZW06-10B	5	10.2	11.4	12	12.6	1	16.7	36	21.7	184	7.8	2300
BZW06P11	BZW06P11B	5	11.1	12.4	13	14.3	1	18.2	33	23.6	169	8.1	2150
BZW06-11	BZW06-11B	5	11.1	12.4	13	13.7	1	18.2	33	23.6	169	8.1	2150
BZW06P13	BZW06P13B	5	12.8	14.3	15	16.5	1	21.2	28	27.2	147	8.4	1900
BZW06-13	BZW06-13B	5	12.8	14.3	15	15.8	1	21.2	28	27.2	147	8.4	1900
BZW06P14	BZW06P14B	5	13.6	15.2	16	17.6	1	22.5	27	28.9	138	8.6	1800
BZW06-14	BZW06-14B	5	13.6	15.2	16	16.8	1	22.5	27	28.9	138	8.6	1800
BZW06P15	BZW06P15B	5	15.3	17.1	18	19.8	1	25.2	24	32.5	123	8.8	1600
BZW06-15	BZW06-15B	5	15.3	17.1	18	18.9	1	25.2	24	32.5	123	8.8	1600
BZW06P17	BZW06P17B	5	17.1	19	20	22	1	27.7	22	36.1	111	9.0	1500
BZW06-17	BZW06-17B	5	17.1	19	20	21	1	27.7	22	36.1	111	9.0	1500
BZW06P19	BZW06P19B	5	18.8	20.9	22	24.2	1	30.6	20	39.3	102	9.2	1350
BZW06-19	BZW06-19B	5	18.8	20.9	22	23.1	1	30.6	20	39.3	102	9.2	1350

Types		I_{RM} @ V_{RM}		V_{BR} @ I_R min	nom	max		V_{CL} @ I_{PP} max		V_{CL} @ I_{PP} max		αT max	C typ
				note2				10/1000µs		8/20µs		note3	note4
Unidirectional	Bidirectional	µA	V	V	V	V	mA	V	A	V	A	10^{-4}/°C	pF
BZW06P20	BZW06P20B	5	20.5	22.8	24	26.4	1	33.2	18	42.8	93	9.4	1250
BZW06-20	BZW06-20B	5	20.5	22.8	24	25.2	1	33.2	18	42.8	93	9.4	1250
BZW06P23	BZW06P23B	5	23.1	25.7	27	29.7	1	37.5	16	48.3	83	9.6	1150
BZW06-23	BZW06-23B	5	23.1	25.7	27	28.4	1	37.5	16	48.3	83	9.6	1150
BZW06P26	BZW06P26B	5	25.6	28.5	30	33	1	41.5	14.5	53.5	75	9.7	1075
BZW06-26	BZW06-26B	5	25.6	28.5	30	31.5	1	41.5	14.5	53.5	75	9.7	1075
BZW06P28	BZW06P28B	5	28.2	31.4	33	36.3	1	45.7	13.1	59.0	68	9.8	1000
BZW06-28	BZW06-28B	5	28.2	31.4	33	34.7	1	45.7	13.1	59.0	68	9.8	1000
BZW06P31	BZW06P31B	5	30.8	34.2	36	39.6	1	49.9	12	64.3	62	9.9	950
BZW06-31	BZW06-31B	5	30.8	34.2	36	37.8	1	49.9	12	64.3	62	9.9	950
BZW06P33	BZW06P33B	5	33.3	37.1	39	42.9	1	53.9	11.1	69.7	57	10.0	900
BZW06-33	BZW06-33B	5	33.3	37.1	39	41.0	1	53.9	11.1	69.7	57	10.0	900
BZW06P37	BZW06P37B	5	36.8	40.9	43	47.3	1	59.3	10.1	76.8	52	10.1	850
BZW06-37	BZW06-37B	5	36.8	40.9	43	45.2	1	59.3	10.1	76.8	52	10.1	850
BZW06P40	BZW06P40B	5	40.2	44.7	47	51.7	1	64.8	9.3	84	48	10.1	800
BZW06-40	BZW06-40B	5	40.2	44.7	47	49.4	1	64.8	9.3	84	48	10.1	800
BZW06P44	BZW06P44B	5	43.6	48.5	51	56.1	1	70.1	8.6	91	44	10.2	750
BZW06-44	BZW06-44B	5	43.6	48.5	51	53.6	1	70.1	8.6	91	44	10.2	750
BZW06P48	BZW06P48B	5	47.8	53.2	56	61.6	1	77	7.8	100	40	10.3	700
BZW06-48	BZW06-48B	5	47.8	53.2	56	58.8	1	77	7.8	100	40	10.3	700
BZW06P53	BZW06P53B	5	53.0	58.9	62	68.2	1	85	7.1	111	36	10.4	650
BZW06-53	BZW06-53B	5	53.0	58.9	62	65.1	1	85	7.1	111	36	10.4	650
BZW06P58	BZW06P58B	5	58.1	64.6	68	74.8	1	92	6.5	121	33	10.4	625
BZW06-58	BZW06-58B	5	58.1	64.6	68	71.4	1	92	6.5	121	33	10.4	625
BZW06P64	BZW06P64B	5	64.1	71.3	75	82.5	1	103	5.8	134	30	10.5	575
BZW06-64	BZW06-64B	5	64.1	71.3	75	78.8	1	103	5.8	134	30	10.5	575
BZW06P70	BZW06P70B	5	70.1	77.9	82	90.2	1	113	5.3	146	27	10.5	550
BZW06-70	BZW06-70B	5	70.1	77.9	82	86.1	1	113	5.3	146	27	10.5	550
BZW06P78	BZW06P78B	5	77.8	86.5	91	100	1	125	4.8	162	25	10.6	525
BZW06-78	BZW06-78B	5	77.8	86.5	91	95.5	1	125	4.8	162	25	10.6	525
BZW06P85	BZW06P85B	5	85.5	95.0	100	110	1	137	4.4	178	22.5	10.6	500
BZW06-85	BZW06-85B	5	85.5	95.0	100	105	1	137	4.4	178	22.5	10.6	500
BZW06P94	BZW06P94B	5	94.0	105	110	121	1	152	3.9	195	20.5	10.7	470
BZW06-94	BZW06-94B	5	94.0	105	110	116	1	152	3.9	195	20.5	10.7	470
BZW06P102	BZW06P102B	5	102	114	120	132	1	165	3.6	212	19	10.7	450
BZW06-102	BZW06-102B	5	102	114	120	126	1	165	3.6	212	19	10.7	450
BZW06P111	BZW06P111B	5	111	124	130	143	1	179	3.4	230	17.5	10.7	420
BZW06-111	BZW06-111B	5	111	124	130	137	1	179	3.4	230	17.5	10.7	420

Types		I_{RM} @ V_{RM} max		V_{BR} @ I_R min nom max note2				V_{CL} @ I_{PP} max 10/1000µs		V_{CL} @ I_{PP} max 8/20µs		αT max note3	C typ note4
Unidirectional	Unidirectional	µA	V	V	V	V	mA	V	A	V	A	10^{-4}/°C	pF
BZW06P128	BZW06P128B	5	128	143	150	165	1	207	2.9	265	15	10.8	400
BZW06-128	BZW06-128B	5	128	143	150	158	1	207	2.9	265	15	10.8	400
BZW06P136	BZW06P136B	5	136	152	160	176	1	219	2.7	282	14	10.8	380
BZW06-136	BZW06-136B	5	136	152	160	168	1	219	2.7	282	14	10.8	380
BZW06P145	BZW06P145B	5	145	161	170	187	1	234	2.6	301	13	10.8	370
BZW06-145	BZW06-145B	5	145	161	170	179	1	234	2.6	301	13	10.8	370
BZW06P154	BZW06P154B	5	154	171	180	198	1	246	2.4	317	12.6	10.8	360
BZW06-154	BZW06-154B	5	154	171	180	189	1	246	2.4	317	12.6	10.8	360
BZW06P171	BZW06P171B	5	171	190	200	220	1	274	2.2	353	11.3	10.8	350
BZW06-171	BZW06-171B	5	171	190	200	210	1	274	2.2	353	11.3	10.8	350
BZW06P188	BZW06P188B	5	188	209	220	242	1	328	2	388	10.3	10.8	330
BZW06-188	BZW06-188B	5	188	209	220	231	1	328	2	388	10.3	10.8	330
BZW06P213	BZW06P213B	5	213	237	250	275	1	344	2	442	9	11	310
BZW06-213	BZW06-213B	5	231	237	250	263	1	344	2	442	9	11	310
BZW06P239	BZW06P239B	5	239	266	280	308	1	384	2	494	8	11	300
BZW06-239	BZW06-239B	5	239	266	280	294	1	384	2	494	8	11	300
BZW06P256	BZW06P256B	5	256	285	300	330	1	414	1.6	529	7.6	11	290
BZW06-256	BZW06-256B	5	256	285	300	315	1	414	1.6	529	7.6	11	290
BZW06P273	BZW06P273B	5	273	304	320	352	1	438	1.6	564	7.1	11	280
BZW06-273	BZW06-273B	5	273	304	320	336	1	438	1.6	564	7.1	11	280
BZW06P299	BZW06P299B	5	299	332	350	385	1	482	1.6	618	6.5	11	270
BZW06-299	BZW06-299B	5	299	332	350	368	1	482	1.6	618	6.5	11	270
BZW06P342	BZW06P342B	5	342	380	400	440	1	548	1.3	706	5.7	11	360
BZW06-342	BZW06-342B	5	342	380	400	420	1	548	1.3	706	5.7	11	360
BZW06P376	BZW06P376B	5	376	418	440	484	1	603	1.3	776	5.7	11	350
BZW06-376	BZW06-376B	5	376	418	440	462	1	603	1.3	776	5.7	11	350



Note 1 : For surges greater than the maximum values, the diode will present a short-circuit Anode - Cathode

Note 2 : Pulse test: tp < 50 ms.

Note 3 : $\Delta V_{BR} = \alpha T * (Tamb - 25) * V_{BR}(25°C)$

Note 4 : V_R = 0 V, F = 1 MHz. For bidirectional types, capacitance value is divided by 2.

Fig. 1: Power dissipation derating versus ambient temperature

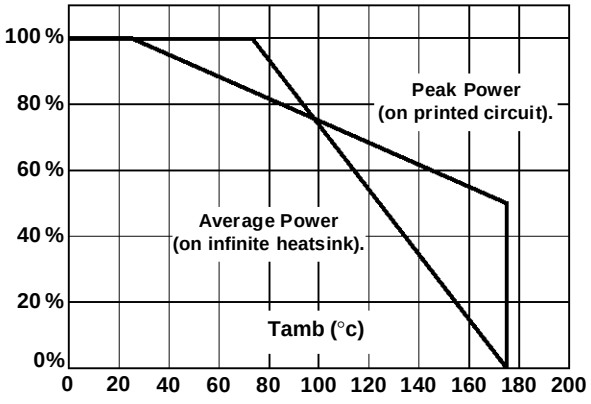


Fig. 2 : Peak pulse power versus exponential pulse duration.

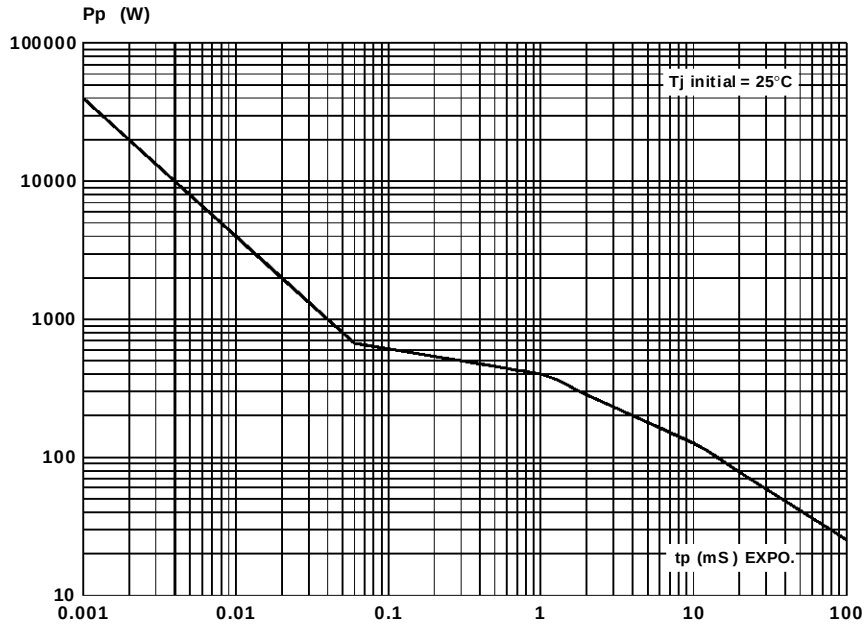
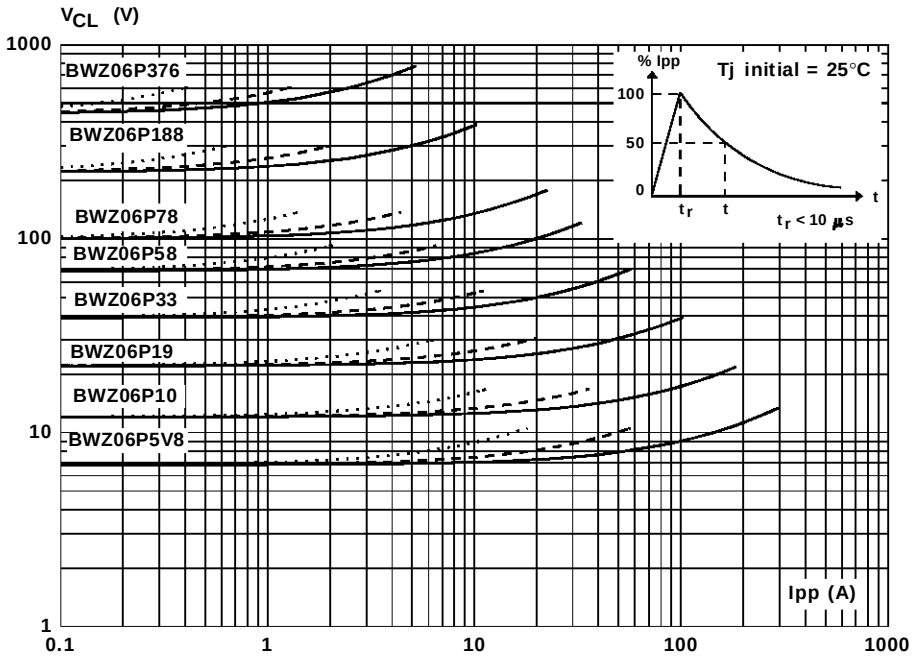


Fig. 3 : Clamping voltage versus peak pulse current.
Exponential waveform t_p = 20 µs _____
t_p = 1 ms ----------
t_p = 10 ms .....



Note : The curves of the figure 3 are specified for a junction temperature of 25 °C before surge.
The given results may be extrapolated for other junction temperatures by using the following formula :
$\Delta V_{BR} = \alpha T * (T_{amb} - 25) * V_{BR}$ (25°C).
For intermediate voltages, extrapolate the given results.

Fig. 4a : Capacitance versus reverse applied voltage for unidirectional types (typical values).

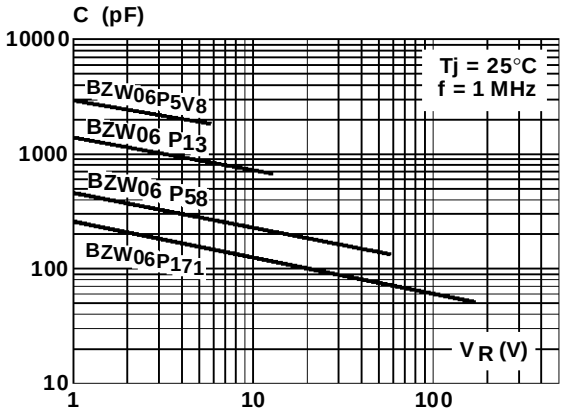


Fig. 4b : Capacitance versus reverse applied voltage for bidirectional types (typical values).

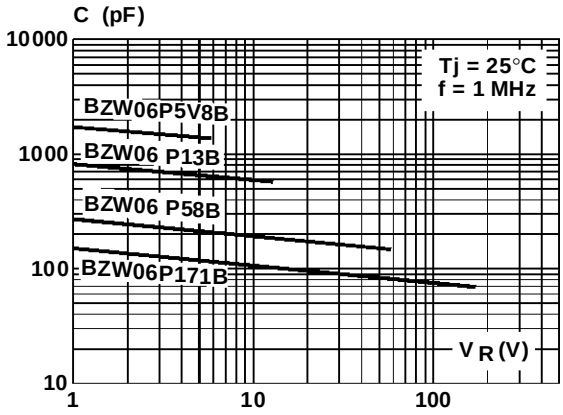


Fig. 5 : Peak forward voltage drop versus peak forward current (typical values for unidirectional types).

Note : For units with V_{BR} > 200 V V_F is twice than shown.

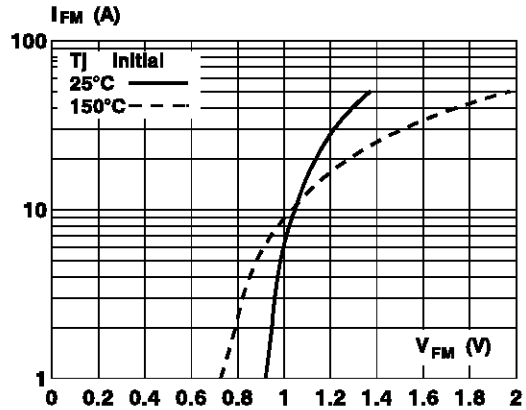
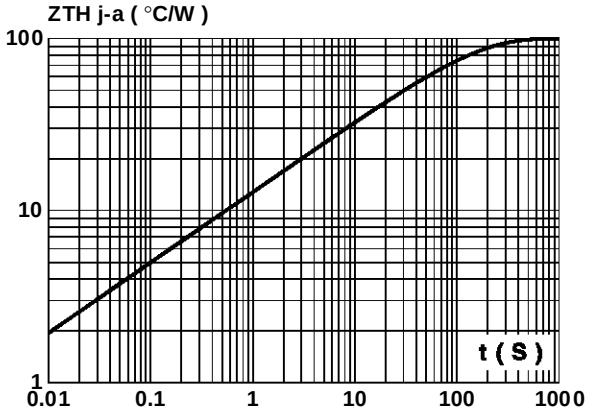


Fig. 6 : Transient thermal impedance junction-ambient versus pulse duration. For a mounting on PC Board with L_{lead} = 10mm.



ORDER CODE

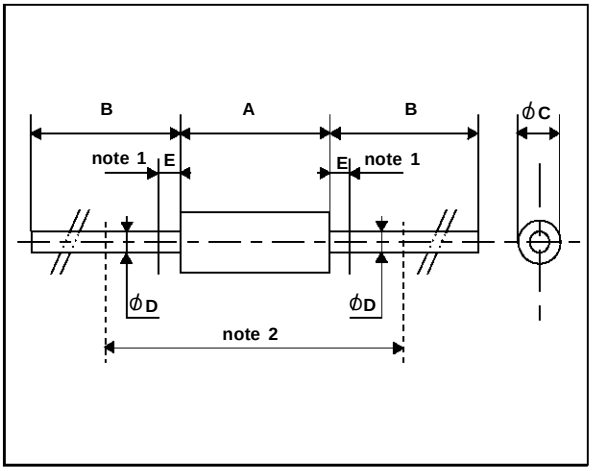
BZW 06 - 10 B RL

- 600 W
- TOLERANCE : - = +/- 5% ; P = -5%, +10%.
- PACKAGING : ' ' = Ammopack ; 'RL' = Tape and reel.
- BIDIRECTIONAL ; No suffix : Unidirectional
- STAND-OFF VOLTAGE

MARKING : Logo, Date Code, Type Code, Cathode Band (for unidirectional types only).

PACKAGE MECHANICAL DATA

F126 (Plastic)



Weight = 0.4 g.

Packaging : standard packaging is in tape and reel.

REF.	DIMENSIONS				NOTES
	Millimeters		Inches		
	Min.	Max.	Min.	Max.	
A	6.05	6.35	0.238	0.250	1 - The lead diameter ∅ D is not controlled over zone E 2 - The minimum axial lengh within which the device may be placed with its leads bent at right angles is 0.59"(15 mm)
B	26		1.024		
∅ C	2.95	3.05	0.116	0.120	
∅ D	0.76	0.86	0.029	0.034	
E		1.27		0.050	