



# P6SMBJ SERIES

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR POWER 600 Watt

**STAND-OFF VOLTAGE**

**5 to 220 Volt**

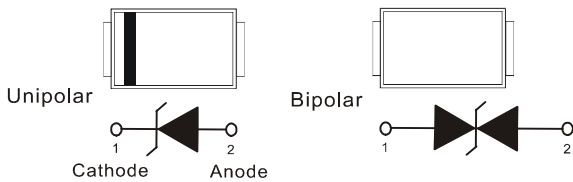
**Recognized File # E210467 (P6SMBJ5.0~P6SMBJ170CA)**

### FEATURES

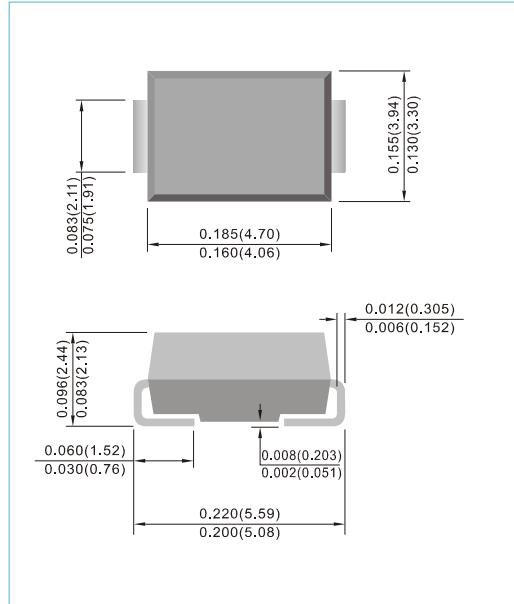
- For surface mounted applications in order to optimize board space
- Glass passivated junction
- Low inductance
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- High temperature soldering : 260°C /10 seconds at terminals
- ESD IEC-61000-4-2 Air ± 30kV, Contact ± 30kV
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### MECHANICAL DATA

- Case: JEDEC DO-214AA, Molded plastic over passivated junction.
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Standard Packaging: 12mm tape (EIA-481)
- Approx. Weight: 0.003 ounces, 0.092 grams



### SMB / DO-214AA Unit : inch(mm)



### DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types P6SMBJ5.0 thru types P6SMBJ220.  
Electrical characteristics apply in both directions.

### MAXIMUM RATINGS AND CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz.  
For Capacitive load derate current by 20%.

Rating	Symbol	Value	Units
Peak Pulse Power Dissipation on $t_p=10/1000\mu s$ waveform (Notes 1,2, Fig.1)	$P_{PP}$	600	Watts
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (Notes 2,3)	$I_{FSM}$	100	Amps
Peak Pulse Current on $t_p=10/1000\mu s$ waveform (Notes 1) Fig.3	$I_{PPM}$	see Table 1	Amps
Typical Thermal Resistance Junction to Air (Notes 2)	$R_{\theta JA}$	60	°C / W
ESD IEC-61000-4-2 (Air) ESD IEC-61000-4-2 (Contact)	$V_{ESD}$	±30 ±30	kV
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	°C

#### NOTES :

1. Non-repetitive current pulse, per Fig.3 and derated above  $T_A = 25^\circ C$  per Fig. 2.
2. Mounted on  $5mm^2$  (0.13mm thick) land areas.
3. Measured on 8.3ms, single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.
4. A transient suppressor is selected according to the working peak reverse voltage ( $V_{RWM}$ ), which should be equal to or greater than the DC or continuous peak operating voltage level.



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Part Number		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max. Clamp Voltage 10/1000µs	Peak Pulse Current 10/1000µs	Marking Code	
			$V_{BR} @ I_T$			$I_R @ V_{RWM}$					
			Min.	Max.		UNI	BI				
UNI	BI	V	V	V	mA	µA	µA	V	A	UNI	BI
<b>600W Transient Voltage Suppressor</b>											
P6SMBJ5.0	P6SMBJ5.0C	5	6.4	7.55	10	800	1600	9.6	62.5	KD	AD
P6SMBJ5.0A	P6SMBJ5.0CA	5	6.4	7.07	10	800	1600	9.2	65.2	KE	AE
P6SMBJ6.0	P6SMBJ6.0C	6	6.67	8.45	10	800	1600	11.4	52.6	KF	AF
P6SMBJ6.0A	P6SMBJ6.0CA	6	6.67	7.37	10	800	1600	10.3	58.3	KG	AG
P6SMBJ6.5	P6SMBJ6.5C	6.5	7.22	9.14	10	500	1000	12.3	48.7	KH	AH
P6SMBJ6.5A	P6SMBJ6.5CA	6.5	7.22	7.98	10	500	1000	11.2	53.6	KK	AK
P6SMBJ7.0	P6SMBJ7.0C	7	7.78	9.86	10	200	400	13.3	45.1	KL	AL
P6SMBJ7.0A	P6SMBJ7.0CA	7	7.78	8.6	10	200	400	12.0	50	KM	AM
P6SMBJ7.5	P6SMBJ7.5C	7.5	8.33	10.67	1	100	200	14.3	42	KN	AN
P6SMBJ7.5A	P6SMBJ7.5CA	7.5	8.33	9.21	1	100	200	12.9	46.5	KP	AP
P6SMBJ8.0	P6SMBJ8.0C	8	8.89	11.3	1	50	100	15.0	40	KQ	AQ
P6SMBJ8.0A	P6SMBJ8.0CA	8	8.89	9.83	1	50	100	13.6	44.1	KR	AR
P6SMBJ8.5	P6SMBJ8.5C	8.5	9.44	11.92	1	10	20	15.9	37.7	KS	AS
P6SMBJ8.5A	P6SMBJ8.5CA	8.5	9.44	10.4	1	10	20	14.4	41.7	KT	AT
P6SMBJ9.0	P6SMBJ9.0C	9	10	12.6	1	5	5	16.9	35.5	KU	AU
P6SMBJ9.0A	P6SMBJ9.0CA	9	10	11.1	1	5	5	15.4	39	KV	AV
P6SMBJ10	P6SMBJ10C	10	11.1	14.1	1	5	5	18.8	31.9	KW	AW
P6SMBJ10A	P6SMBJ10CA	10	11.1	12.3	1	5	5	17	35.3	KX	AX
P6SMBJ11	P6SMBJ11C	11	12.2	15.4	1	1	1	20.1	29.9	KY	AY
P6SMBJ11A	P6SMBJ11CA	11	12.2	13.5	1	1	1	18.2	33	KZ	AZ
P6SMBJ12	P6SMBJ12C	12	13.3	16.9	1	1	1	22	27.3	LD	BD
P6SMBJ12A	P6SMBJ12CA	12	13.3	14.7	1	1	1	19.9	30.2	LE	BE
P6SMBJ13	P6SMBJ13C	13	14.4	18.2	1	1	1	23.8	25.2	LF	BF
P6SMBJ13A	P6SMBJ13CA	13	14.4	15.9	1	1	1	21.5	27.9	LG	BG
P6SMBJ14	P6SMBJ14C	14	15.6	19.8	1	1	1	25.8	23.3	LH	BH
P6SMBJ14A	P6SMBJ14CA	14	15.6	17.2	1	1	1	23.2	25.8	LK	BK
P6SMBJ15	P6SMBJ15C	15	16.7	21.1	1	1	1	26.9	22.3	LL	BL
P6SMBJ15A	P6SMBJ15CA	15	16.7	18.5	1	1	1	24.4	24	LM	BM
P6SMBJ16	P6SMBJ16C	16	17.8	22.6	1	1	1	28.8	20.8	LN	BN
P6SMBJ16A	P6SMBJ16CA	16	17.8	19.7	1	1	1	26	23.1	LP	BP
P6SMBJ17	P6SMBJ17C	17	18.9	23.9	1	1	1	30.5	19.7	LQ	BQ
P6SMBJ17A	P6SMBJ17CA	17	18.9	20.9	1	1	1	27.6	21.7	LR	BR
P6SMBJ18	P6SMBJ18C	18	20	25.3	1	1	1	32.2	18.6	LS	BS
P6SMBJ18A	P6SMBJ18CA	18	20	22.1	1	1	1	29.2	20.5	LT	BT
P6SMBJ20	P6SMBJ20C	20	22.2	28.1	1	1	1	35.8	16.7	LU	BU
P6SMBJ20A	P6SMBJ20CA	20	22.2	24.5	1	1	1	32.4	18.5	LV	BV
P6SMBJ22	P6SMBJ22C	22	24.4	30.9	1	1	1	39.4	15.2	LW	BW
P6SMBJ22A	P6SMBJ22CA	22	24.4	27	1	1	1	35.5	16.9	LX	BX
P6SMBJ24	P6SMBJ24C	24	26.7	33.8	1	1	1	43	14	LY	BY
P6SMBJ24A	P6SMBJ24CA	24	26.7	29.5	1	1	1	38.9	15.4	LZ	BZ
P6SMBJ26	P6SMBJ26C	26	28.9	36.6	1	1	1	46.6	12.4	MD	CD
P6SMBJ26A	P6SMBJ26CA	26	28.9	31.9	1	1	1	42.1	14.2	ME	CE
P6SMBJ28	P6SMBJ28C	28	31.1	39.4	1	1	1	50	12	MF	CF
P6SMBJ28A	P6SMBJ28CA	28	31.1	34.4	1	1	1	45.4	13.2	MG	CG
P6SMBJ30	P6SMBJ30C	30	33.3	42.2	1	1	1	53.5	11.2	MH	CH
P6SMBJ30A	P6SMBJ30CA	30	33.3	36.8	1	1	1	48.4	12.4	MK	CK
P6SMBJ33	P6SMBJ33C	33	36.7	46.5	1	1	1	59	10.2	ML	CL
P6SMBJ33A	P6SMBJ33CA	33	36.7	40.6	1	1	1	53.3	11.3	MM	CM
P6SMBJ36	P6SMBJ36C	36	40	50.7	1	1	1	64.3	9.3	MN	CN
P6SMBJ36A	P6SMBJ36CA	36	40	44.2	1	1	1	58.1	10.3	MP	CP
P6SMBJ40	P6SMBJ40C	40	44.4	56.3	1	1	1	71.4	8.4	MQ	CQ
P6SMBJ40A	P6SMBJ40CA	40	44.4	49.1	1	1	1	64.5	9.3	MR	CR

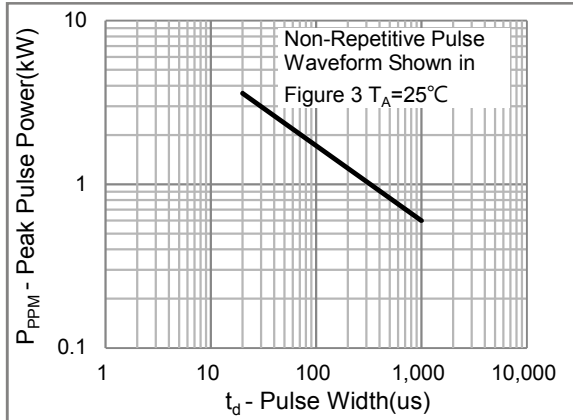


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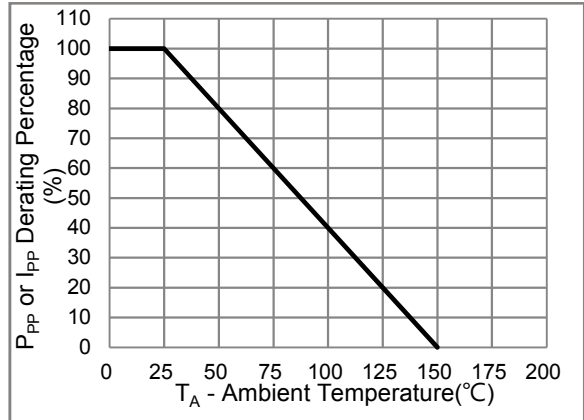
Part Number		Reverse Stand-off Voltage	Breakdown Voltage			Test Current	Reverse Leakage		Max. Clamp Voltage 10/1000µs	Peak Pulse Current 10/1000µs	Marking Code	
			V <sub>BR</sub> @ I <sub>T</sub>				I <sub>r</sub> @ V <sub>RWM</sub>					
			Min.	Max.			UNI	BI				
UNI	BI	V	V	V	mA	µA	µA	V	A	UNI	BI	
<b>600W Transient Voltage Suppressor</b>												
P6SMBJ43	P6SMBJ43C	43	47.8	60.5	1	1	1	76.7	7.8	MS	CS	
P6SMBJ43A	P6SMBJ43CA	43	47.8	52.8	1	1	1	69.4	8.6	MT	CT	
P6SMBJ45	P6SMBJ45C	45	50	63.3	1	1	1	80.3	7.5	MU	CU	
P6SMBJ45A	P6SMBJ45CA	45	50	55.3	1	1	1	72.7	8.3	MV	CV	
P6SMBJ48	P6SMBJ48C	48	53.3	67.5	1	1	1	85.5	7	MW	CW	
P6SMBJ48A	P6SMBJ48CA	48	53.3	58.9	1	1	1	77.4	7.7	MX	CX	
P6SMBJ51	P6SMBJ51C	51	56.7	71.8	1	1	1	91.1	6.6	MY	CY	
P6SMBJ51A	P6SMBJ51CA	51	56.7	62.7	1	1	1	82.4	7.3	MZ	CZ	
P6SMBJ54	P6SMBJ54C	54	60	76	1	1	1	96.3	6.2	ND	DD	
P6SMBJ54A	P6SMBJ54CA	54	60	66.3	1	1	1	87.1	6.9	NE	DE	
P6SMBJ58	P6SMBJ58C	58	64.4	81.6	1	1	1	103	5.8	NF	DF	
P6SMBJ58A	P6SMBJ58CA	58	64.4	71.2	1	1	1	93.6	6.4	NG	DG	
P6SMBJ60	P6SMBJ60C	60	66.7	84.5	1	1	1	107	5.6	NH	DH	
P6SMBJ60A	P6SMBJ60CA	60	66.7	73.7	1	1	1	96.8	6.2	NK	DK	
P6SMBJ64	P6SMBJ64C	64	71.1	90.1	1	1	1	114	5.3	NL	DL	
P6SMBJ64A	P6SMBJ64CA	64	71.1	78.6	1	1	1	103	5.8	NM	DM	
P6SMBJ70	P6SMBJ70C	70	77.8	98.6	1	1	1	125	4.8	NN	DN	
P6SMBJ70A	P6SMBJ70CA	70	77.8	86	1	1	1	113	5.3	NP	DP	
P6SMBJ75	P6SMBJ75C	75	83.3	105.7	1	1	1	134	4.5	NQ	DQ	
P6SMBJ75A	P6SMBJ75CA	75	83.3	92.1	1	1	1	121	4.9	NR	DR	
P6SMBJ78	P6SMBJ78C	78	86.7	109.8	1	1	1	139	4.3	NS	DS	
P6SMBJ78A	P6SMBJ78CA	78	86.7	95.8	1	1	1	126	4.7	NT	DT	
P6SMBJ85	P6SMBJ85C	85	94.4	119.2	1	1	1	151	3.9	NU	DU	
P6SMBJ85A	P6SMBJ85CA	85	94.4	104	1	1	1	137	4.4	NV	DV	
P6SMBJ90	P6SMBJ90C	90	100	126.5	1	1	1	160	3.8	NW	DW	
P6SMBJ90A	P6SMBJ90CA	90	100	111	1	1	1	146	4.1	NX	DX	
P6SMBJ100	P6SMBJ100C	100	111	141	1	1	1	179	3.4	NY	DY	
P6SMBJ100A	P6SMBJ100CA	100	111	123	1	1	1	162	3.7	NZ	DZ	
P6SMBJ110	P6SMBJ110C	110	122	154.5	1	1	1	196	3	PD	ED	
P6SMBJ110A	P6SMBJ110CA	110	122	135	1	1	1	177	3.4	PE	EE	
P6SMBJ120	P6SMBJ120C	120	133	169	1	1	1	214	2.8	PF	EF	
P6SMBJ120A	P6SMBJ120CA	120	133	147	1	1	1	193	3.1	PG	EG	
P6SMBJ130	P6SMBJ130C	130	144	182.5	1	1	1	231	2.6	PH	EH	
P6SMBJ130A	P6SMBJ130CA	130	144	159	1	1	1	209	2.9	PK	EK	
P6SMBJ150	P6SMBJ150C	150	167	211.5	1	1	1	268	2.2	PL	EL	
P6SMBJ150A	P6SMBJ150CA	150	167	185	1	1	1	243	2.5	PM	EM	
P6SMBJ160	P6SMBJ160C	160	178	226	1	1	1	287	2.1	PN	EN	
P6SMBJ160A	P6SMBJ160CA	160	178	197	1	1	1	259	2.3	PP	EP	
P6SMBJ170	P6SMBJ170C	170	189	239.5	1	1	1	304	2	PQ	EQ	
P6SMBJ170A	P6SMBJ170CA	170	189	209	1	1	1	275	2.2	PR	ER	
P6SMBJ180	P6SMBJ180C	180	198	253.8	1	1	1	322	1.9	PS	ES	
P6SMBJ180A	P6SMBJ180CA	180	198	222	1	1	1	292	2.1	PT	ET	
P6SMBJ190	P6SMBJ190C	190	209	267.9	1	1	1	340	1.8	PU	EU	
P6SMBJ190A	P6SMBJ190CA	190	209	243.2	1	1	1	308	2	PV	EV	
P6SMBJ200	P6SMBJ200C	200	220	282	1	1	1	358	1.7	PW	EW	
P6SMBJ200A	P6SMBJ200CA	200	220	247	1	1	1	324	1.9	PX	EX	
P6SMBJ210	P6SMBJ210C	210	231	296.1	1	1	1	376	1.6	PY	EY	
P6SMBJ210A	P6SMBJ210CA	210	231	268.8	1	1	1	340	1.8	PZ	EZ	
P6SMBJ220	P6SMBJ220C	220	242	310.2	1	1	1	394	1.5	QD	FD	
P6SMBJ220A	P6SMBJ220CA	220	242	272	1	1	1	356	1.7	QE	FE	



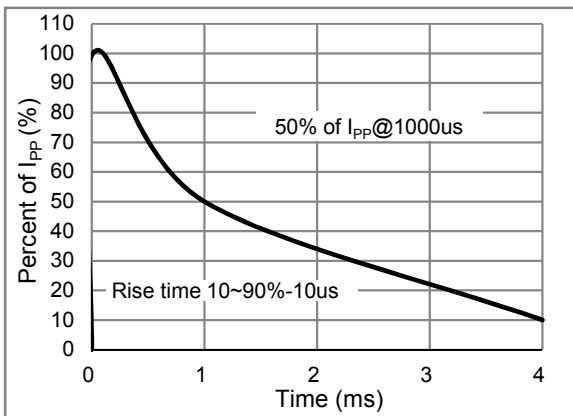
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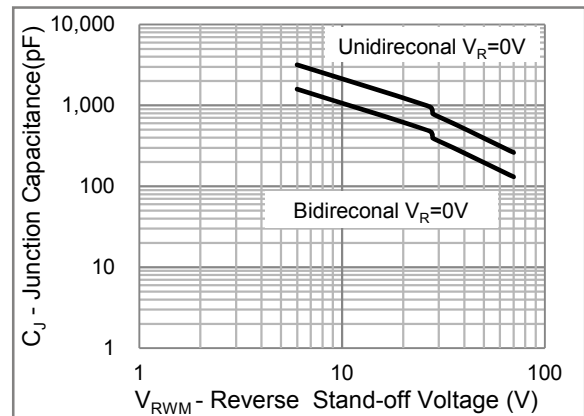
**Fig.1 Peak Pulse Power Rating**



**Fig.2 Derating Curve**



**Fig.3 10/1000us Pulse Waveform**

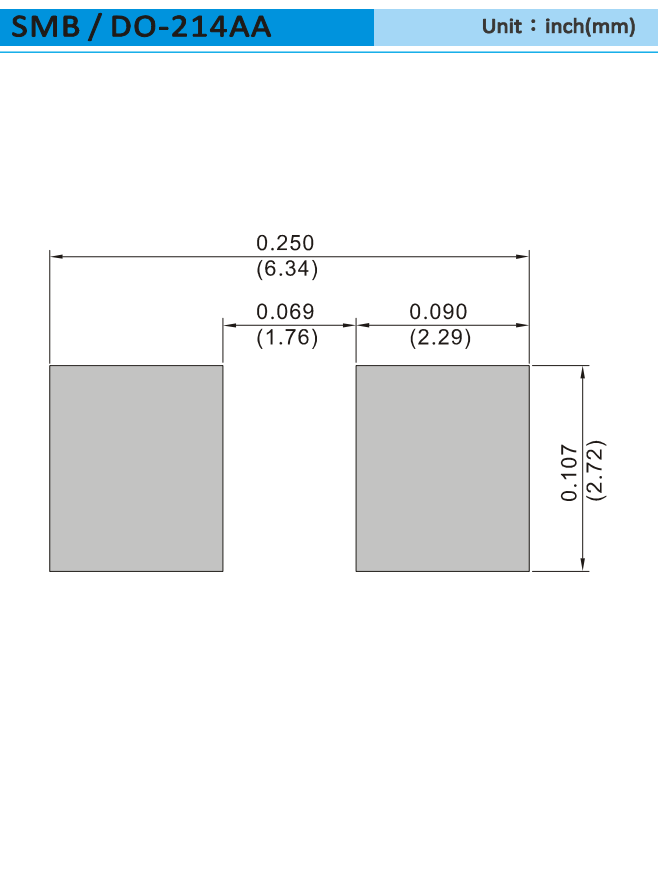


**Fig.4 Typical Capacitance**



## P6SMBJ SERIES

### MOUNTING PAD LAYOUT



### ORDER INFORMATION

- Packing information  
T/R - 3K per 13" plastic Reel  
T/R - 0.8K per 7" plastic Reel



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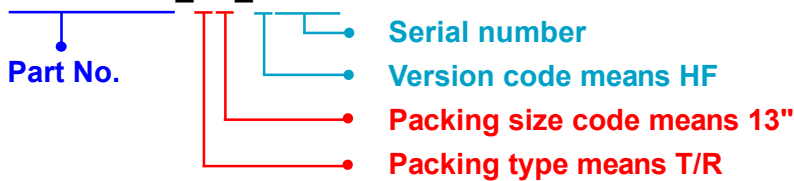
### Part No.\_packing code\_Version

P6SMBJ5.0\_R1\_00001

P6SMBJ5.0\_R2\_00001

For example :

**RB500V-40\_R2\_00001**



Packing Code <b>XX</b>				Version Code <b>XXXXX</b>		
Packing type	1 <sup>st</sup> Code	Packing size code	2 <sup>nd</sup> Code	HF or RoHS	1 <sup>st</sup> Code	2 <sup>nd</sup> ~5 <sup>th</sup> Code
Tape and Ammunition Box (T/B)	<b>A</b>	N/A	<b>0</b>	<b>HF</b>	<b>0</b>	serial number
Tape and Reel (T/R)	<b>R</b>	7"	<b>1</b>	<b>RoHS</b>	<b>1</b>	serial number
Bulk Packing (B/P)	<b>B</b>	13"	<b>2</b>			
Tube Packing (T/P)	<b>T</b>	26mm	<b>X</b>			
Tape and Reel (Right Oriented) (TRR)	<b>S</b>	52mm	<b>Y</b>			
Tape and Reel (Left Oriented) (TRL)	<b>L</b>	PANASERT T/B CATHODE UP (PBCU)	<b>U</b>			
FORMING	<b>F</b>	PANASERT T/B CATHODE DOWN (PBCD)	<b>D</b>			