

SMBG Plastic-Encapsulate Diodes

Transient Voltage Suppressor Diodes

Features

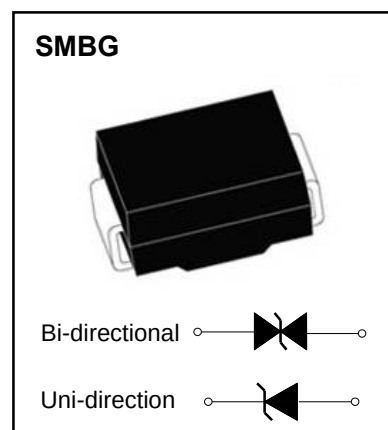
- P_{PPM} 1000W
- V_{RWM} 5.0V- 480V
- Low power loss, high efficiency
- Excellent clamping capability

Applications

- Protect sensitive circuit from damage by high voltage transients
- Lighting, ESD transient voltage protection of IC, system
- Inductive switching load protection of IC, system
- Electrical Fast Transient Immunity protection of IC, system

Mechanical Data

- Case: JEDEC DO-214AA molded plastic
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Solder plated, solderable per MIL- STD-202, Method 208
- Polarity: Color band denotes cathode end



Limiting Values (Absolute Maximum Rating)

Item	Symbol	Unit	Conditions	Max
Peak pulse power dissipation	P_{PPM}	W	with a 10/1000us waveform	1000
Peak pulse current(1)	I_{PPM}	A	with a 10/1000us waveform	See Next Table
Power dissipation	P_D	W	On infinite heat sink at $T_L=75^{\circ}\text{C}$	5.0
Peak forward surge current(2)	I_{FSM}	A	8.3 ms single half sine-wave unidirectional only	100
Operating junction and storage temperature range	T_J, T_{STG}	$^{\circ}\text{C}$		-55 to +150

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Max
Maximum instantaneous forward Voltage (2)	V_F	V	at 50A for uni directional only	3.5/6.5
Thermal resistance	$R_{\theta JL}$	$^{\circ}\text{C/W}$	Between junction and lead	20
	$R_{\theta JA}$	$^{\circ}\text{C/W}$	Between junction and Ambient	100
	$R_{\theta JC}$	$^{\circ}\text{C/W}$	Between junction and Case	15

Notes:

(1) Non-repetitive current pulse, per Fig. 3 and derated above $T_A = 25^{\circ}\text{C}$ per Fig.2.

(2) $V_F < 3.5\text{V}$ for devices of $V_{BR} < 200\text{V}$ and $V_F < 6.5\text{V}$ for devices of $V_{BR} > 201\text{V}$

Electrical Characteristics (T_A=25°C unless otherwise noted)

Part Number		Device Marking Code		Reverse Stand-off Voltage	Breakdown Voltage V _{BR} @ I _T		Test Current	Max. Clamping Voltage @ I _{PP}	Max. Peak Pulse Current	Max. Reverse Leakage @ V _{RWM}
UNI-POLAR	BI-POLAR	UNI	BI	V _{RWM} (V)	Min.(V)	Max.(V)	I _T (mA)	V _{C MAX.} (V)	I _{PP} (A)	I _R (uA)
SMB10J5.0A	SMB10J5.0CA	KKE	KAE	5.0	6.40	7.00	10	9.2	108.83	800
SMB10J6.0A	SMB10J6.0CA	KKG	KAG	6.0	6.67	7.37	10	10.3	97.17	800
SMB10J6.5A	SMB10J6.5CA	KKK	KAK	6.5	7.22	7.98	10	11.2	89.33	500
SMB10J7.0A	SMB10J7.0CA	KKM	KAM	7.0	7.78	8.60	10	12.0	83.33	200
SMB10J7.5A	SMB10J7.5CA	KKP	KAP	7.5	8.33	9.21	1	12.9	77.67	100
SMB10J8.0A	SMB10J8.0CA	KKR	KAR	8.0	8.89	9.83	1	13.6	73.67	50
SMB10J8.5A	SMB10J8.5CA	KKT	KAT	8.5	9.44	10.40	1	14.4	69.50	20
SMB10J9.0A	SMB10J9.0CA	KKV	KAV	9.0	10.00	11.10	1	15.4	65.00	10
SMB10J10A	SMB10J10CA	KKX	KAX	10.0	11.10	12.30	1	17.0	58.83	5
SMB10J11A	SMB10J11CA	KKZ	KAZ	11.0	12.20	13.50	1	18.2	55.00	1
SMB10J12A	SMB10J12CA	KLE	KBE	12.0	13.30	14.70	1	19.9	50.33	1
SMB10J13A	SMB10J13CA	KLG	KBG	13.0	14.40	15.90	1	21.5	46.67	1
SMB10J14A	SMB10J14CA	KLK	KBK	14.0	15.60	17.20	1	23.2	43.17	1
SMB10J15A	SMB10J15CA	KLM	KBM	15.0	16.70	18.50	1	24.4	41.00	1
SMB10J16A	SMB10J16CA	KLP	KBP	16.0	17.80	19.70	1	26.0	38.50	1
SMB10J17A	SMB10J17CA	KLR	KBR	17.0	18.90	20.90	1	27.6	36.33	1
SMB10J18A	SMB10J18CA	KLT	KBT	18.0	20.00	22.10	1	29.2	34.33	1
SMB10J20A	SMB10J20CA	KLV	KBV	20.0	22.20	24.50	1	32.4	31.00	1
SMB10J22A	SMB10J22CA	KLX	KBX	22.0	24.40	26.90	1	35.5	28.17	1
SMB10J24A	SMB10J24CA	KLZ	KBZ	24.0	26.70	29.50	1	38.9	25.83	1
SMB10J26A	SMB10J26CA	KME	KCE	26.0	28.90	31.90	1	42.1	23.83	1
SMB10J28A	SMB10J28CA	KMG	KCG	28.0	31.10	34.40	1	45.4	22.17	1
SMB10J30A	SMB10J30CA	KMK	KCK	30.0	33.50	36.80	1	48.4	20.67	1
SMB10J33A	SMB10J33CA	KMM	KCM	33.0	36.70	40.60	1	53.3	18.83	1
SMB10J36A	SMB10J36CA	KMP	KCP	36.0	40.00	44.20	1	58.1	17.33	1
SMB10J40A	SMB10J40CA	KMR	KCR	40.0	44.40	49.10	1	64.5	15.50	1
SMB10J43A	SMB10J43CA	KMT	KCT	43.0	47.80	52.80	1	69.4	14.50	1
SMB10J45A	SMB10J45CA	KMV	KCV	45.0	50.00	55.30	1	72.7	13.83	1
SMB10J48A	SMB10J48CA	KMX	KCX	48.0	53.30	58.90	1	77.4	13.00	1
SMB10J51A	SMB10J51CA	KMZ	KCZ	51.0	56.70	62.70	1	82.4	12.17	1
SMB10J54A	SMB10J54CA	KNE	KDE	54.0	60.00	66.30	1	87.1	11.50	1
SMB10J58A	SMB10J58CA	KNG	KDG	58.0	64.40	71.20	1	93.6	10.83	1
SMB10J60A	SMB10J60CA	KNK	KDK	60.0	66.70	73.70	1	96.8	10.33	1
SMB10J64A	SMB10J64CA	KNM	KDM	64.0	71.10	78.60	1	103.0	9.83	1
SMB10J70A	SMB10J70CA	KNP	KDP	70.0	77.80	86.00	1	113.0	8.83	1
SMB10J75A	SMB10J75CA	KNR	KDR	75.0	83.30	92.10	1	121.0	8.33	1
SMB10J78A	SMB10J78CA	KNT	KDT	78.0	86.70	95.80	1	126.0	8.00	1
SMB10J85A	SMB10J85CA	KNV	KDV	85.0	94.4	104.0	1	137.0	7.33	1
SMB10J90A	SMB10J90CA	KNX	KDX	90.0	100.0	111.0	1	146.0	6.83	1
SMB10J100A	SMB10J100CA	KNZ	KDZ	100.0	111.0	123.0	1	162.0	6.17	1
SMB10J110A	SMB10J110CA	KPE	KEE	110.0	122.0	135.0	1	177.0	5.67	1
SMB10J120A	SMB10J120CA	KPG	KEG	120.0	133.0	147.0	1	193.0	5.17	1
SMB10J130A	SMB10J130CA	KPK	KEK	130.0	144.0	159.0	1	209.0	4.83	1
SMB10J150A	SMB10J150CA	KPM	KEM	150.0	167.0	185.0	1	243.0	4.17	1
SMB10J160A	SMB10J160CA	KPP	KEP	160.0	178.0	197.0	1	259.0	3.83	1
SMB10J170A	SMB10J170CA	KPR	KER	170.0	189.0	209.0	1	275.0	3.67	1
SMB10J180A	SMB10J180CA	KPT	KET	180.0	201.0	222.0	1	292.0	3.50	1
SMB10J190A	SMB10J190CA	KPA	KEC	190.0	209.0	243.0	1	308.0	3.33	1
SMB10J200A	SMB10J200CA	KPV	KEV	200.0	224.0	247.0	1	324.0	3.17	1
SMB10J210A	SMB10J210CA	KPB	KED	210.0	231.0	268.0	1	340.0	3.00	1
SMB10J220A	SMB10J220CA	KPX	KEX	220.0	246.0	272.0	1	356.0	2.83	1
SMB10J250A	SMB10J250CA	KPZ	KEZ	250.0	279.0	309.0	1	405.0	2.50	1
SMB10J300A	SMB10J300CA	KQE	KFE	300.0	335.0	371.0	1	486.0	2.17	1
SMB10J350A	SMB10J350CA	KQG	KFG	350.0	391.0	432.0	1	567.0	1.83	1
SMB10J400A	SMB10J400CA	KQK	KFK	400.0	447.0	494.0	1	648.0	1.50	1
SMB10J440A	SMB10J440CA	KQM	KFM	440.0	492.0	543.0	1	713.0	1.50	1
SMB10J480A	SMB10J480CA	KQP	KFP	480.0	536.0	593.0	1	750.0	1.33	1

Typical Characteristics

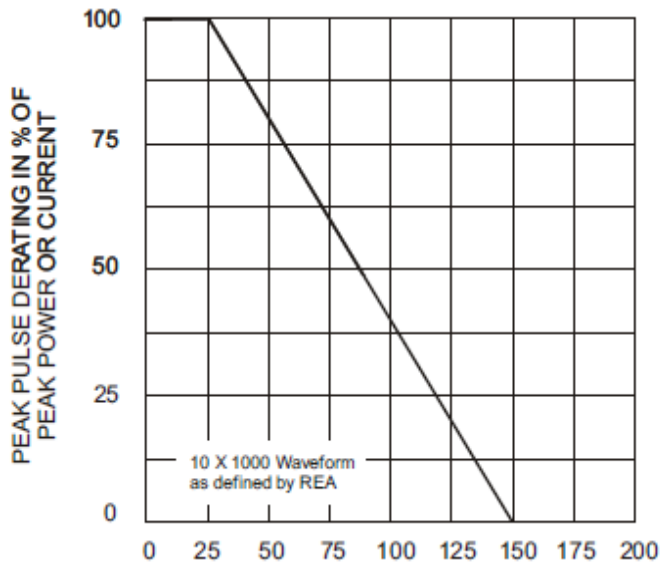


Fig. 1 - Pulse Derating Curve

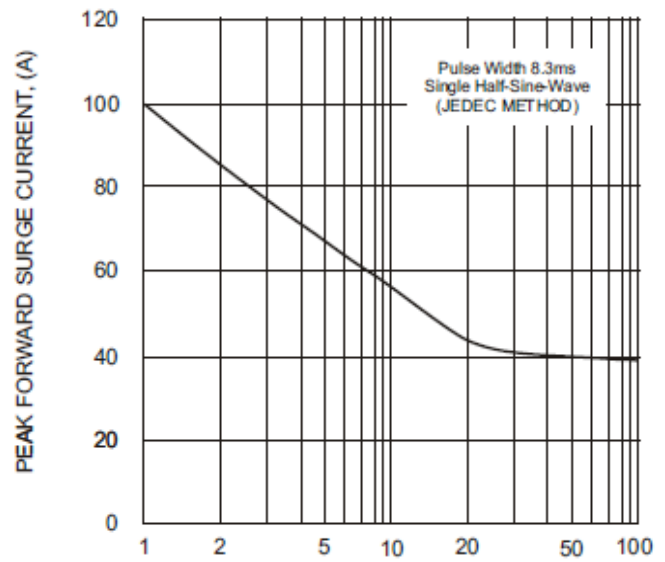


Fig. 2 - Maximum Non-Repetitive Surge Current

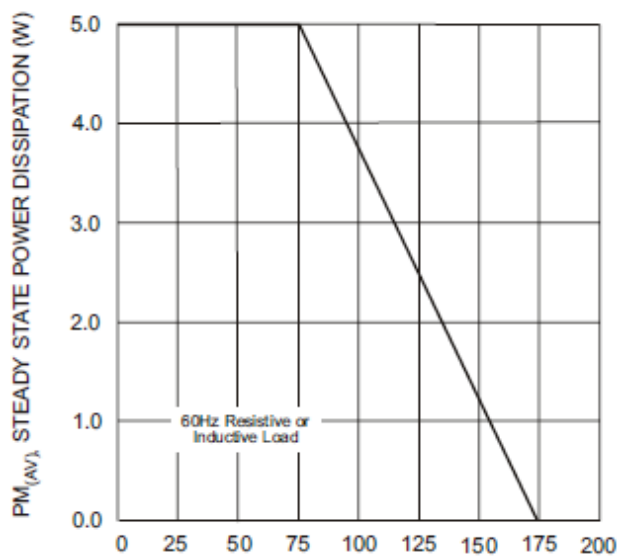


Fig. 3 - Steady State Power Derating Curve

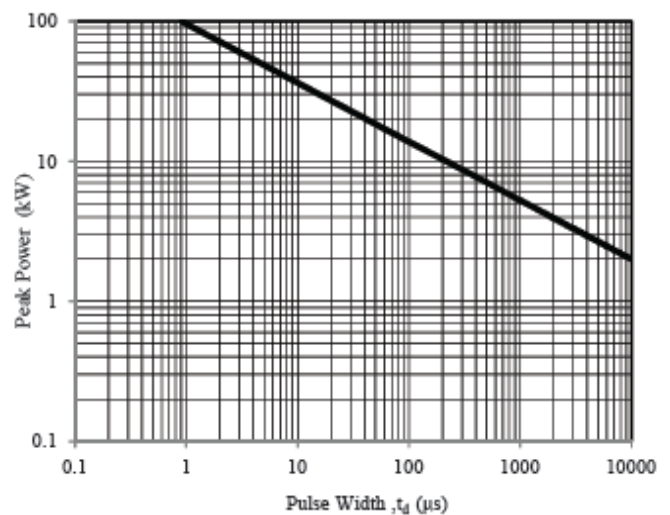


Fig. 4 - Peak Pulse Power Rating Curve

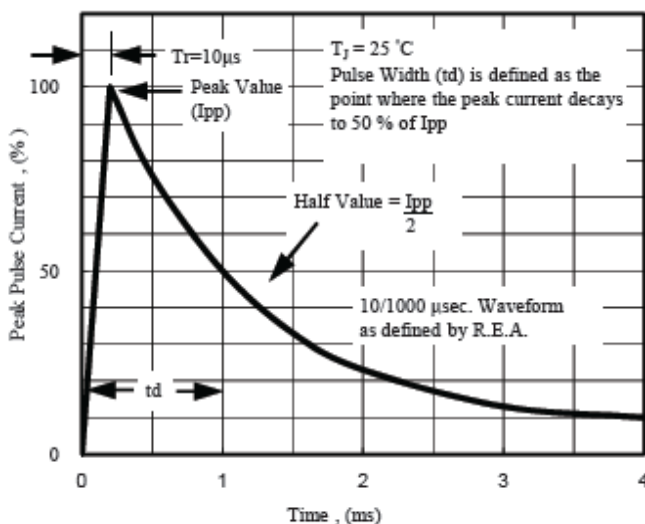


Fig. 5 - Pulse Waveform

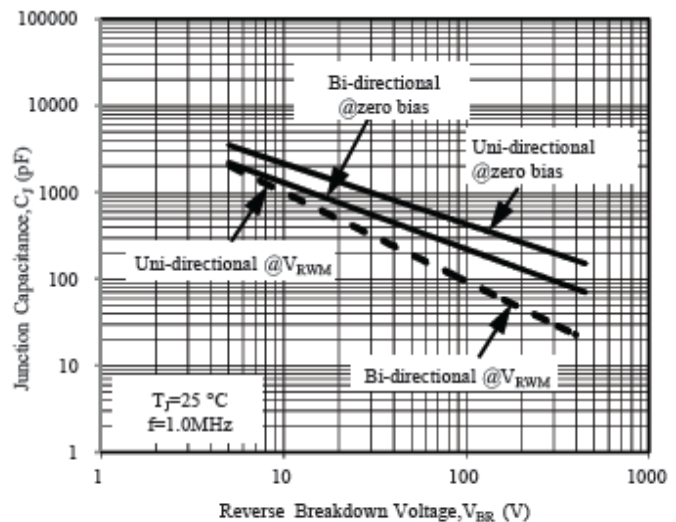
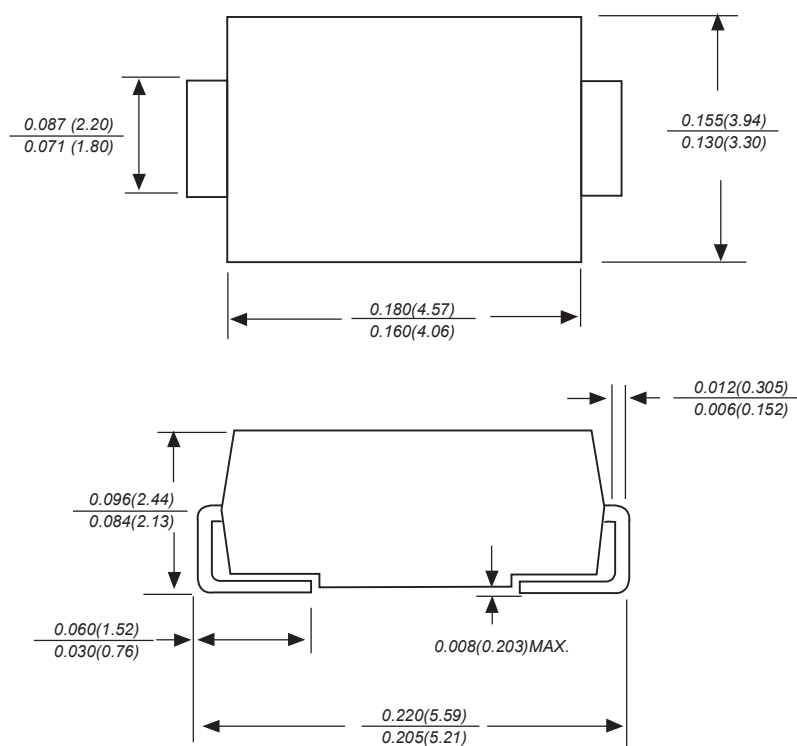


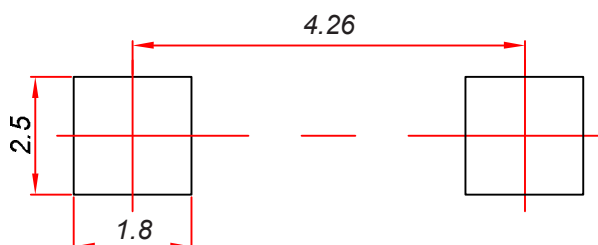
Fig. 6 - Typical Junction Capacitance

SMBG Package Outline Dimensions



Dimensions in inches and (millimeters)

SMBG Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

Ordering Information

Part Number	Package	Shipping Quantity
SMB10J5.0(C)A-SMB10J480(C)A	SMBG	3000/tape&Reel

Marking Diagram

Uni-direction



XX: From 5.0 To 480

Bi-directional



Reel Taping Specifications For Surface Mount Devices–SMBG

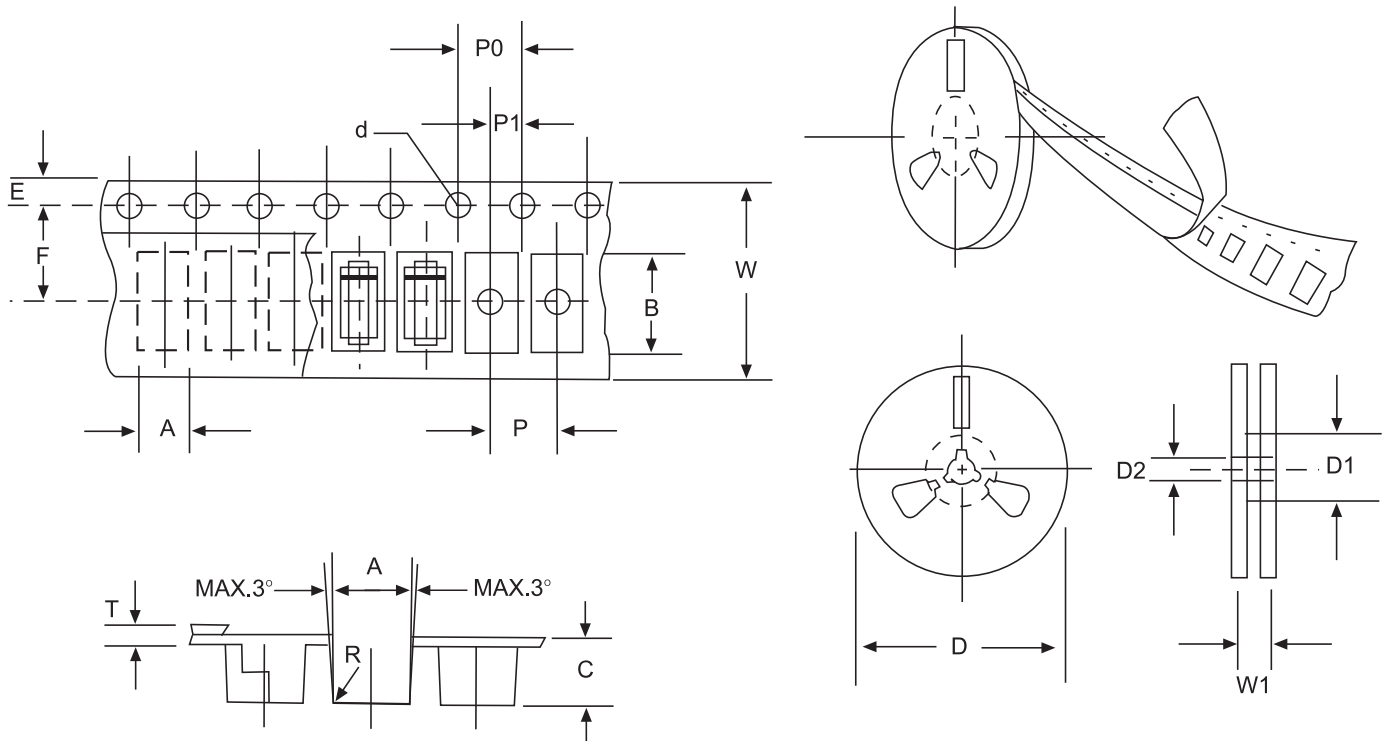


FIG: CONFIGURATION OF SURFACE MOUNTED DEVICES TAPING

ITEM	SYMBOL	SMBG mm(inch)
Carrier width	A	4.09±0.1(0.161±0.004)
Carrier length	B	5.82±0.1(0.229±0.004)
Carrier depth	C	2.50±0.1(0.100±0.004)
Sprocket hole	d	1.55±0.05 (0.061±0.002)
Reel outside diameter	D	330±2.0(13±0.079)
Reel inner diameter	D1	75 ±1.0 (2.95 ±0.039)
Feed hole diameter	D2	13±0.5(0.512±0.020)
Sprocket hole position	E	1.75±0.1(0.069±0.004)
Punch hole position	F	5.65±0.05(0.222±0.002)
Punch hole pitch	P	8.0±0.1(0.315±0.004)
Sprocket hole pitch	P0	4.0±0.1(0.157±0.004)
Embossment center	P1	2.0±0.1(0.079±0.004)
Total tape thickness	T	0.32±0.1 (0.013±0.004)
Tape width	W	12.0±0.2(0.472±0.008)
Reel width	W1	16.8±2.0(0.661±0.079)

NOTE: Devices are packed in accordance with EIA standard RS-481-A and specification given above.