

PRIMARY CHARACTERISTICS	
P_{PP}	200W
V_{RWM}	5.0V~350.0V
I_{PP}	21.74A~0.69A
V_C	9.2V~308V
$T_{J,Max}$	150°C

* 250V , 300V , 350V only UNI-POLAR

FEATURES

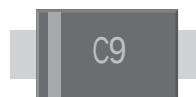
- Glass passivated chip
- 200 W peak pulse power capability with a10/1000 μ s waveform, repetitive rate (duty cycle):0.01 %
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- Very fast response time
- Moisture Sensitivity Level 1

SOD-123S PACKAGE

- Body Marking :Please See Table

EX : SMF5.0A

EX : SMF5.0CA



UNI- POLAR



BI-POLAR



MECHANICAL DATA

- Case : Molded plastic,SOD-123S
- Polarity : Shown above
- Terminals :Plated terminals, solderable per MIL-STD-750,Method 2026
- Epoxy : UL94-V0 rated flame retardant

Maximum Ratings($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	UNIT
Peak power dissipation with a 10/1000 μ s waveform ⁽¹⁾	P_{PP}	200	W
Peak power dissipation with a 8/20 μ s waveform ⁽¹⁾	P_{PP}	1000	W
Peak pulse current with a 10/1000 μ s waveform ⁽¹⁾	I_{PP}	See Next Table	A
Power dissipation on infinite heatsink at $T_L = 75^\circ\text{C}$	P_D	0.4	W
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only ⁽²⁾	I_{FSM}	20	A
Maximum instantaneous forward voltage at 25 A for unidirectional only	V_F	3.5	V
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	°C

Note:

(1)Non-repetitive current pulse per Fig.5 and derated above $T_A = 25^\circ\text{C}$ per Fig.1

(2)Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum



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

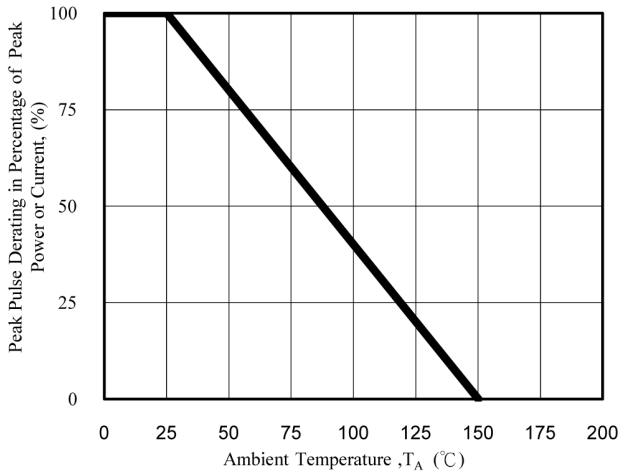


Fig. 1 - Pulse Derating Curve

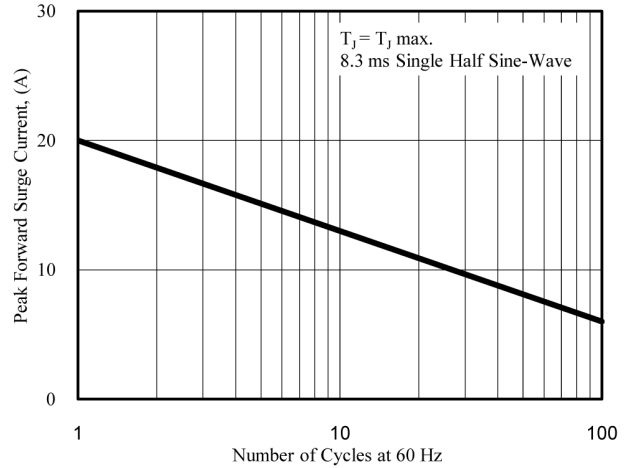


Fig. 2 - Maximum Non-Repetitive Surge Current

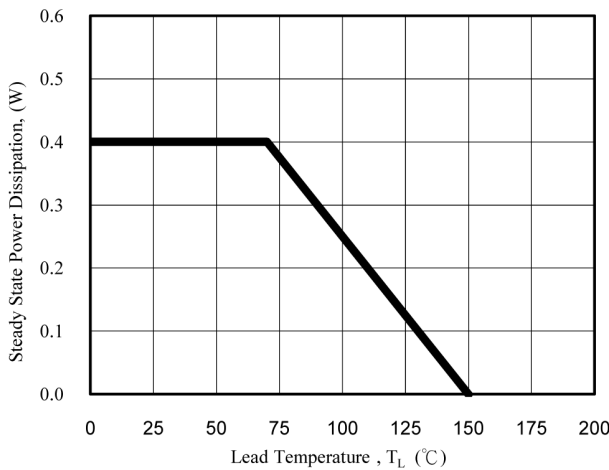


Fig. 3 - Steady State Power Derating Curve

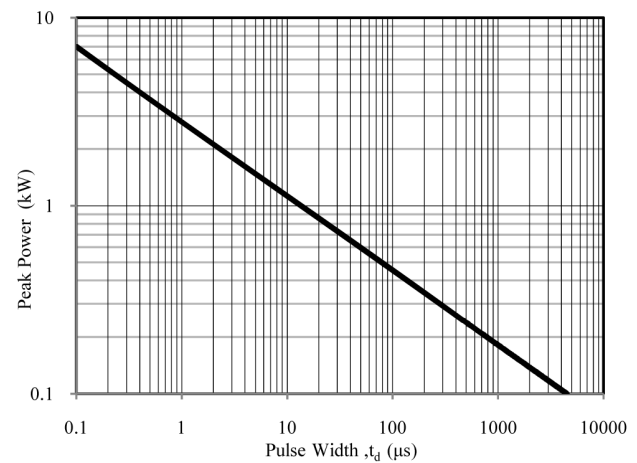


Fig. 4 - Peak Pulse Power Rating Curve

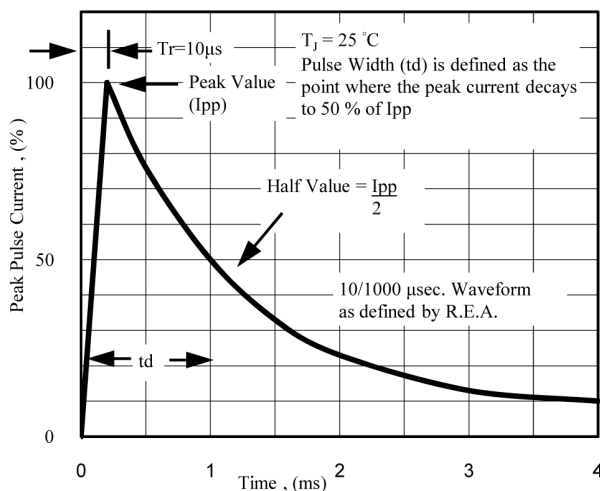


Fig. 5 - Pulse Waveform

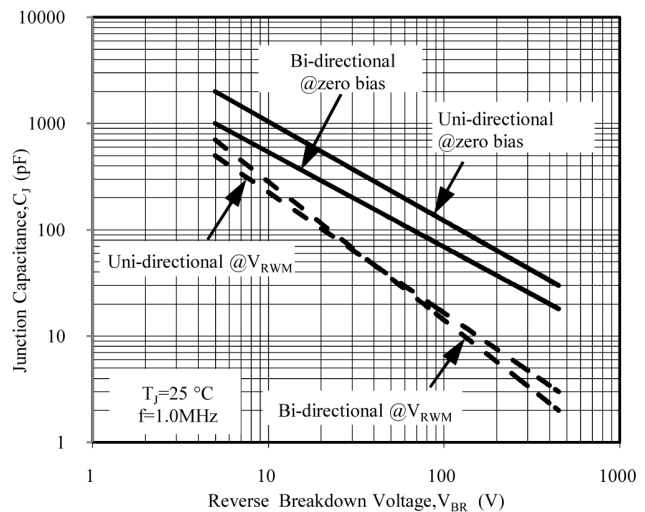


Fig. 6 - Typical Junction Capacitance

Part No.		Marking Code		Reverse Stand-Off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V) Min @ I_T	Breakdown Voltage V_{BR} (V) Max @ I_T	Test Current I_T (mA)	Max Clamping Voltage V_C (V) @ I_{PP}	Peak Pulse Current I_{PP} (A)	Reverse Leakage I_R (μ A) @ V_{RWM}
UNI-POLAR	BI-POLAR	UNI-POLAR	BI-POLAR							
SMF5.0A	SMF5.0CA	FE	KE	5.0	6.40	7.00	10	9.2	21.74	400
SMF6.0A	SMF6.0CA	FG	KG	6.0	6.67	7.37	10	10.3	19.42	400
SMF6.5A	SMF6.5CA	FK	KK	6.5	7.22	7.98	10	11.2	17.86	250
SMF7.0A	SMF7.0CA	FM	KM	7.0	7.78	8.60	10	12.0	16.67	100
SMF7.5A	SMF7.5CA	FP	KP	7.5	8.33	9.21	1.0	12.9	15.50	50
SMF8.0A	SMF8.0CA	FR	KR	8.0	8.89	9.83	1.0	13.6	14.71	25
SMF8.5A	SMF8.5CA	FT	KT	8.5	9.44	10.40	1.0	14.4	13.89	10
SMF9.0A	SMF9.0CA	FV	KV	9.0	10.00	11.10	1.0	15.4	12.99	5
SMF10A	SMF10CA	FX	KX	10.0	11.10	12.30	1.0	17.0	11.76	2.5
SMF11A	SMF11CA	FZ	KZ	11.0	12.20	13.50	1.0	18.2	10.99	2.5
SMF12A	SMF12CA	HE	LE	12.0	13.30	14.70	1.0	19.9	10.05	2.5
SMF13A	SMF13CA	HG	LG	13.0	14.40	15.90	1.0	21.5	9.30	1
SMF14A	SMF14CA	HK	LK	14.0	15.60	17.20	1.0	23.2	8.62	1
SMF15A	SMF15CA	HM	LM	15.0	16.70	18.50	1.0	24.4	8.20	1
SMF16A	SMF16CA	HP	LP	16.0	17.80	19.70	1.0	26.0	7.69	1
SMF17A	SMF17CA	HR	LR	17.0	18.90	20.90	1.0	27.6	7.25	1
SMF18A	SMF18CA	HT	LT	18.0	20.00	22.10	1.0	29.2	6.85	1
SMF19A	SMF19CA	HB	LB	19.0	21.10	23.30	1.0	30.6	6.54	1
SMF20A	SMF20CA	HV	LV	20.0	22.20	24.50	1.0	32.4	6.17	1
SMF22A	SMF22CA	HX	LX	22.0	24.40	26.90	1.0	35.5	5.63	1
SMF24A	SMF24CA	HZ	LZ	24.0	26.70	29.50	1.0	38.9	5.14	1
SMF26A	SMF26CA	JE	ME	26.0	28.90	31.90	1.0	42.1	4.75	1
SMF28A	SMF28CA	JG	MG	28.0	31.10	34.40	1.0	45.4	4.41	1
SMF30A	SMF30CA	JK	MK	30.0	33.30	36.80	1.0	48.4	4.13	1
SMF33A	SMF33CA	JM	MM	33.0	36.70	40.60	1.0	53.3	3.75	1
SMF36A	SMF36CA	JP	MP	36.0	40.00	44.20	1.0	58.1	3.44	1
SMF40A	SMF40CA	JR	MR	40.0	44.40	49.10	1.0	64.5	3.10	1
SMF43A	SMF43CA	JT	MT	43.0	47.80	52.80	1.0	69.4	2.88	1
SMF45A	SMF45CA	JV	MV	45.0	50.00	55.30	1.0	72.7	2.75	1
SMF48A	SMF48CA	JX	MX	48.0	53.30	58.90	1.0	77.4	2.58	1
SMF51A	SMF51CA	JZ	MZ	51.0	56.70	62.70	1.0	82.4	2.43	1
SMF54A	SMF54CA	XE	NE	54.0	60.00	66.30	1.0	87.1	2.30	1
SMF58A	SMF58CA	XG	NG	58.0	64.40	71.20	1.0	93.6	2.14	1
SMF60A	SMF60CA	XK	NK	60.0	66.70	73.70	1.0	96.8	2.07	1
SMF64A	SMF64CA	XM	NM	64.0	71.10	78.60	1.0	103.0	1.94	1
SMF70A	SMF70CA	XP	NP	70.0	77.80	86.00	1.0	113.0	1.77	1
SMF75A	SMF75CA	XR	NR	75.0	83.30	92.10	1.0	121.0	1.65	1
SMF78A	SMF78CA	XT	NT	78.0	86.70	95.80	1.0	126.0	1.59	1
SMF80A	SMF80CA	XB	NB	80.0	88.80	97.60	1.0	129.0	1.55	1



Part No.		Marking Code		Reverse Stand-Off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V) Min @ I_T	Breakdown Voltage V_{BR} (V) Max @ I_T	Test Current I_T (mA)	Max Clamping Voltage V_C (V) @ I_{PP}	Peak Pulse Current I_{PP} (A)	Reverse Leakage I_R (μA) @ V_{RWM}
UNI-POLAR	BI-POLAR	UNI-POLAR	BI-POLAR							
SMF85A	SMF85CA	XV	NV	85.0	94.40	104.00	1.0	137.0	1.46	1
SMF90A	SMF90CA	XX	NX	90.0	100.00	111.00	1.0	146.0	1.37	1
SMF100A	SMF100CA	XZ	NZ	100.0	111.00	123.00	1.0	162.0	1.23	1
SMF110A	SMF110CA	TE	PE	110.0	122.00	135.00	1.0	177.0	1.13	1
SMF120A	SMF120CA	TG	PG	120.0	133.00	147.00	1.0	193.0	1.04	1
SMF130A	SMF130CA	TK	PK	130.0	144.00	159.00	1.0	209.0	0.96	1
SMF140A	SMF140CA	TB	PB	140.0	155.00	171.00	1.0	224.0	0.89	1
SMF150A	SMF150CA	TM	PM	150.0	167.00	185.00	1.0	243.0	0.82	1
SMF160A	SMF160CA	TP	PP	160.0	178.00	197.00	1.0	259.0	0.77	1
SMF170A	SMF170CA	TR	PR	170.0	189.00	209.00	1.0	275.0	0.73	1
SMF180A	SMF180CA	TT	PT	180.0	200.00	220.00	1.0	292.0	0.69	1
SMF190A	SMF190CA	TV	PV	190.0	211.00	232.00	1.0	308.0	0.69	1
SMF200A	SMF200CA	TX	PX	200	224.00	247.00	1.0	324.0	0.62	1
SMF220A	SMF220CA	TZ	PZ	220	246.00	272.00	1.0	356.0	0.56	1
SMF250A		YE		250	279.00	309.00	1.0	405.0	0.50	1
SMF300A		YG		300	335.00	371.00	1.0	486.0	0.41	1
SMF350A		YK		350	391.00	432.00	1.0	567.0	0.36	1

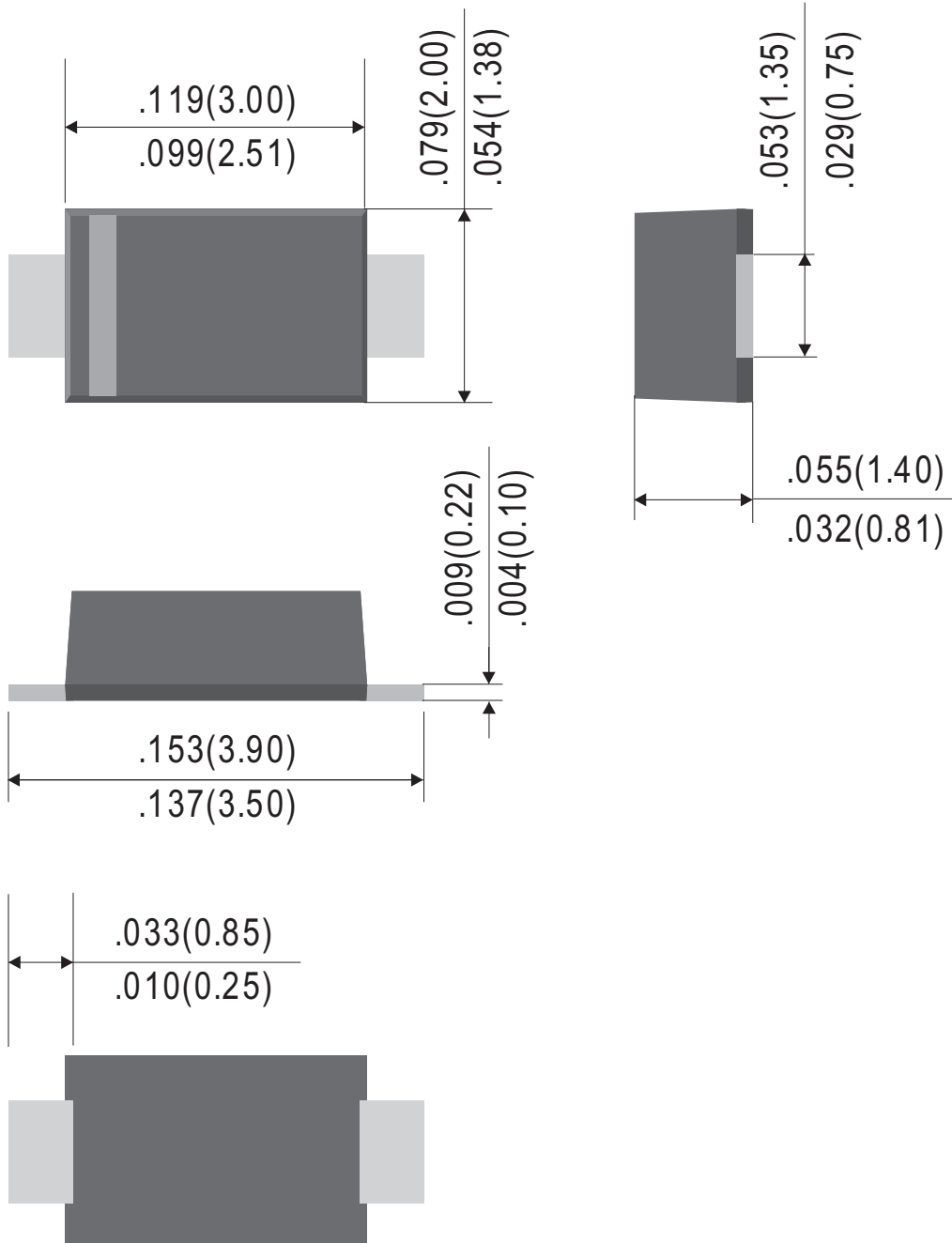
Note:

1. Add suffix "CA" after Part number to specify Bi-directional devices.
2. For Bi-directional devices having VRWM of 10 voltages and under, the IR limit is doubled.



Outline Drawing

SOD-123S



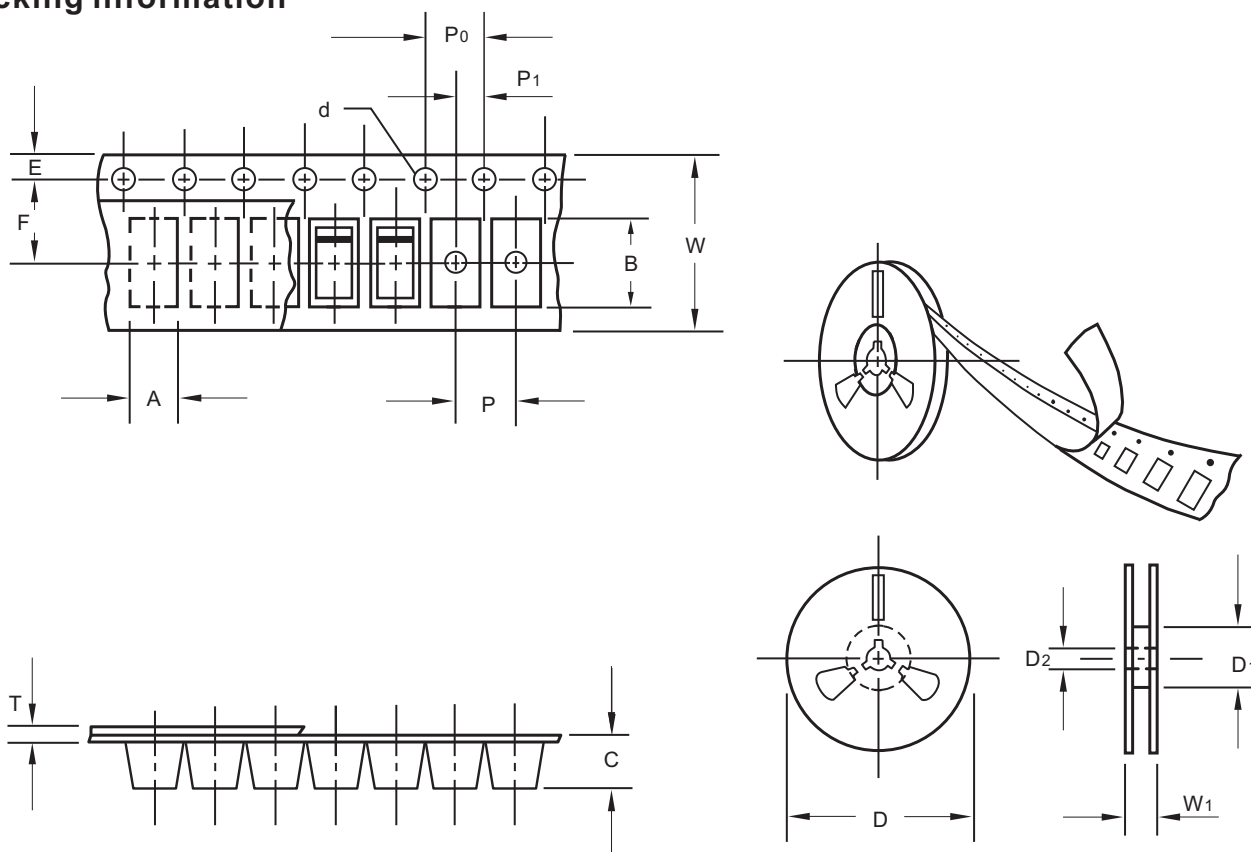
Dimensions in inches and (millimeters)

Rev.F

Reel packing

Package	Tape Pitch	Reel	Tape Space	Reel Dia	Box	Carton
	(m/m)	EA	(m/m)	(inch)	EA	EA
SOD-123S	4	3,000	178	7	24,000	120,000
		3,000	178	7	21,000	252,000

Packing information



unit:mm

Item	Symbol	Tolerance	SOD-123S
Carrier width	A	0.1	2.00
Carrier length	B	0.1	3.85
Carrier depth	C	0.1	1.10
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	min	62.00
Feed hole diameter	D2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W1	1.0	11.40

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

Ordering Information:

Device PN	Packing
Part Number -T ⁽¹⁾ G ⁽²⁾ -WS	Tape & Reel Packing :3000pcs/Reel

Note: 1. Packing code, T: Tape & 7" Reel Packing;

2. RoHS product for packing code suffix "G", Halogen free product for packing code suffix "H" .

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