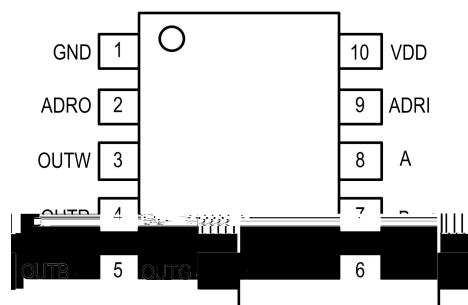


# SM18512PS

- ◆ 5V~36V
- ◆ DMX512(1990)
- ◆ 200kbps~750kbps
- ◆ 40%
- ◆ OUT R/G/B/W
- ◆ / /
- ◆ OUT 7
- ◆ 2
- ◆ 1/2/3/4
- ◆ OUT R/G/B/W 5bit
- ◆ OUT R/G/B/W 40V
- ◆ SSOP10
- ◆ LED
- ◆ LED /

SM18512PS  
LED DMX512 1990  
OUT R/G/B/W 18mA,  
OUT R/G/B/W 32 OUT  
4KHz PWM



SSOP10

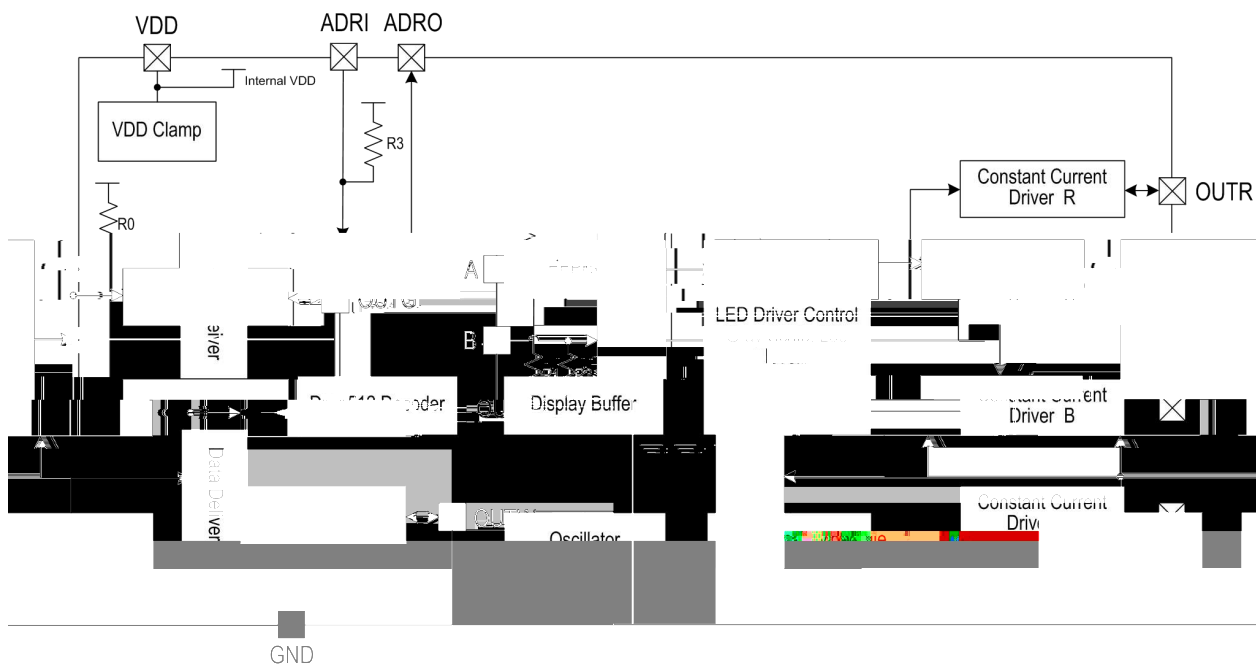


Fig.SMI8512PS

B	-
A	+
ADRI	
VDD	5V
GND	
OUT W/R/G/B	
ADRO	

SMI8512PS	SSOP10	10000 /	4000 /	13

1

$T_A=25^{\circ}\text{C}$

$V_{DD}$		-0.4-5.5	V
$V_{IO}$		-0.4-VDD+0.4	V
$BV_{OUT}$	OUTR,G,B/W	45	V
$I_{OUT}$	OUTR,G,B/W	22	mA
$I_{damp}$	VDD	20	mA
$R_{JA}$	PN 2	90	$^{\circ}\text{C}/\text{W}$
$P_D$	3	0.9	W
$T_J$		-40-150	$^{\circ}\text{C}$
$T_{STG}$		-55-150	$^{\circ}\text{C}$
$V_{ESD}$	HBM	2	KV

1

2  $R_{JA}$   $T_A=25^{\circ}\text{C}$

JEDEC JESD51

3

$T_{JMAX}$   $R_{JA}$

$T_A$

$P_D = (T_{JMAX}-T_A)/R_{JA}$

4 5

$V_{DD}=5V$   $T_A=25^{\circ}C$

$V_{DD}$		$V_{CC}=12V$ $V_{CC}$ $V_{DD}$ $R_D=1K$	4.8	5.2	5.4	V
$I_{DD}$	( )	$V_{DD}=5V$ $I_{OUT}$ "OFF"	-	38	-	mA
	( )	$V_{DD}=5V$ $I_{OUT}$ "ON"	-	51	-	mA
$I_{OH}$	DAO	DAO GND	-	-37	-	mA
$I_{OL}$		DAO VDD	-	36	-	mA
$I_{OUT\_RGBW}$	OUT R/G/B/W	D5:D4:D3:D2:D1=11111	-	18	-	mA
$dl_{OUT\_RGBW}$	OUT R/G/B/W	$I_{OUT}=18mA$	-	$\pm 3$	-	%
$R_{down\_AB}$	A/B	$V_{DD}=4.5V$	-	200	-	K
$R_{UP\_A}$	A	$V_{DD}=4.5V$	-	250	-	K
$V_{CM}$		-	-	-	12	V
$I_{AB}$		-	-	-	28	$\mu A$
$V_{TH}$		$V_{DD}=5V$ $B=2.5V$ $A$	-200	-	200	mV
$V_{TH}$		$V_{DD}=5V$ $B=2.5V$ $A$	-	80	-	mV
$V_{DS\_S}$	$I_{OUT}$	$I_{OUT}=18mA$	-	0.3	-	V
% VS $V_{DS}$	OUT R/G/B/W	$I_{OUT}=18mA$ , $V_{DS}=1-3V$	-	1	-	%
% VS $V_{DD}$		$I_{OUT}=18mA$ , $V_{DS}=4.5-5.5V$	-	1	-	
% VS $T_A$		$I_{OUT}=18mA$ , $T_A=-40\sim+85$	-	4	-	
$R_{UP\_ADRI}$	ADRI	-	-	23	-	K
$T_{OTP}$		-	-	135	-	
$I_{leak}$	OUT R/G/B/W	$I_{OUT}$ "OFF", $V_{DS}=40V$	-	-	1	$\mu A$

4

5

$V_{DD}=5V$   $T_A = 25^\circ C$

$f_{PWM}$	OUT R/G/B/W PWM	$I_{OUT}=18mA$ OUT R/G/B/W 200	VDD	-	4K	-	Hz
$t_r$	OUT R/G/B/W	$I_{OUT}=16mA$ OUT R/G/B/W	100	-	100	-	ns
$t_f$	6	VDD	15pF	-	170	-	ns

6

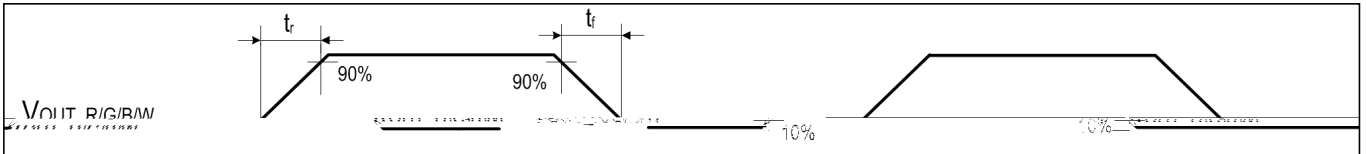


Fig. SM18512PS

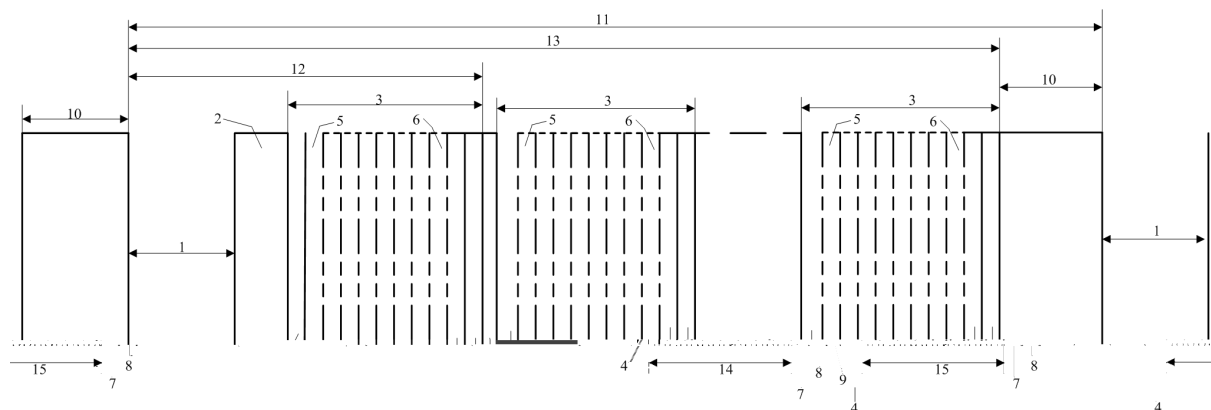


Fig. DMX512(1990)

Figuer Key

- 1- "SPACE" for BREAK
- 2- "MARK" After BREAK (MAB)
- 3- SlotTime
- 4- START Bit
- 5- LEAST SIGNIFICANT Data BIT
- 6- MOST SIGNIFICANT Data BIT
- 7- STOP Bit
- 8- STOP Bit
- 9- "MARK" Time Between slots
- 10- "MARK" Before BREAK (MBB)
- 11- BREAK to BREAK Time
- 12- RESET Sequence (BREAK, MAB, START Code)
- 13- DMX512 Packet
- 14- START CODE (Slot 0 Data)
- 15- SLOT 1 DATA
- 16- SLOT nnn DATA (Maximum 512)

Designation	Description	Mn	Typical	Max	Unit
-	BitRate	245	250	255	kb/s
-	BitTime	3.92	4	4.08	us
-	Minimum Update Time for 513 slots	-	22.7	-	ms
-	Maximum Update Rate for 513 slots	-	44	-	/s
1	"SPACE" for BREAK	88	-	-	us
2	"MARK" After BREAK (MAB)	8	-	-	us
9	"MARK" Time Between slots	0	-	<1.00	s
10	"MARK" Before BREAK (MBB)	0	-	<1.00	s
11	BREAK to BREAK Time	11%	-	-	us
13	DMX512 Packet	11%	-	-	us

1 DMX512 1990

2 MAB

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注：如需最新资料或技术支持，请与我打联系

SM18512PS OUT

I<sub>OUT</sub>

OUT

V<sub>DS</sub>

I<sub>OUT</sub>

V<sub>DS</sub>

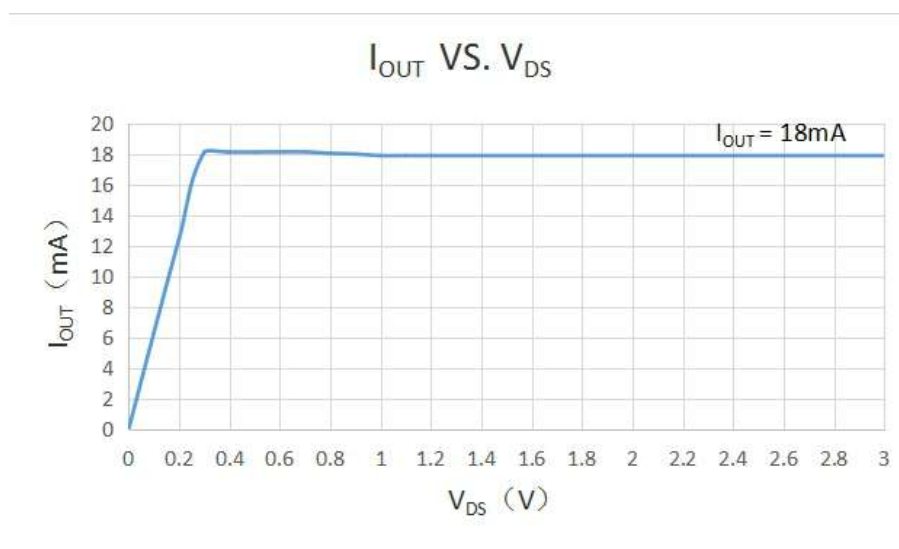


Fig. SM18512PS

I<sub>OUT</sub>

OUT

V<sub>DS</sub>

SM18512PS

OUT RGBW

5bits

D5-D1

	D5	D4	D3	D2	D1	mA
0	0	0	0	0	0	1.1
1	0	0	0	0	1	1.7
2	0	0	0	1	0	2.2
3	0	0	0	1	1	2.7
4	0	0	1	0	0	3.3
5	0	0	1	0	1	3.9
6	0	0	1	1	0	4.4
7	0	0	1	1	1	4.9
8	0	1	0	0	0	5.5
9	0	1	0	0	1	6.1
10	0	1	0	1	0	6.6
11	0	1	0	1	1	7.1
12	0	1	1	0	0	7.7
13	0	1	1	0	1	8.2
14	0	1	1	1	0	8.8
15	0	1	1	1	1	9.3
16	1	0	0	0	0	9.9
17	1	0	0	0	1	10.4
18	1	0	0	1	0	10.9
19	1	0	0	1	1	11.5

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20	1	0	1	0	0	120
21	1	0	1	0	1	126
22	1	0	1	1	0	131
23	1	0	1	1	1	136
24	1	1	0	0	0	142
25	1	1	0	0	1	148
26	1	1	0	1	0	153
27	1	1	0	1	1	158
28	1	1	1	0	0	164
29	1	1	1	0	1	169
30	1	1	1	1	0	175
31	1	1	1	1	1	180



1

2

ADRI

1

3

2

1

2

2

1

2

2

1

/ /

2

/

3

/

4

5

SM18512PS

1

2

## OUT

SM18512PS

1

2 OUT

0-6

OUT

260ns 0

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SM18512PS

DMX512 1990

4095

A/B

1 SM18512PS RGBW

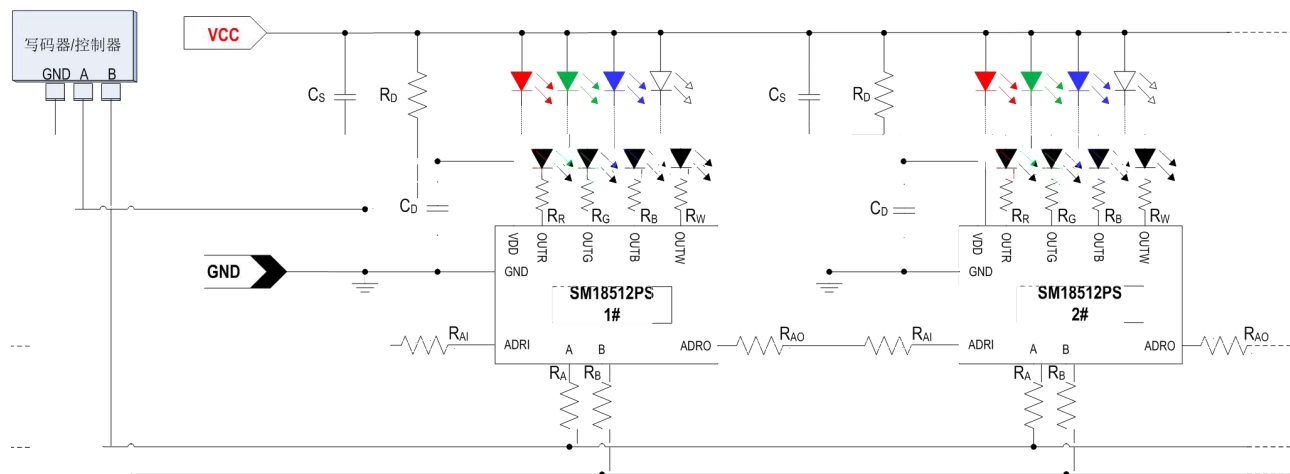


Fig. SM18512PS

SM18512PS VCC R<sub>D</sub> C<sub>S</sub> R/G/B/W LED  
R<sub>R</sub> R<sub>G</sub> R<sub>B</sub> R<sub>W</sub> R<sub>Ai</sub> R<sub>Ao</sub> A/B R<sub>A</sub> R<sub>B</sub>

1 VCC R<sub>D</sub>  
 $V_{DD} = V_{CC} - (I_{DD} + I_{IN}) * R_D$

I<sub>IN</sub> I<sub>DD</sub> R<sub>D</sub> V<sub>DD</sub> > 3V

R <sub>D</sub>		R <sub>D</sub>	VCC	R <sub>D</sub>					
VCC	V	5V	6V	9V	12V	15V	18V	24V	36V
R <sub>D</sub>		33	68	300	1.0K	1.5K	2.0K	3.0K	2.4K+2.4K

2 C<sub>S</sub> 0.1uF-10uF

3 C<sub>D</sub> V<sub>DD</sub> C<sub>D</sub> 100nF

4 R<sub>A</sub> R<sub>B</sub> A/B A B

5 R<sub>Ai</sub>

6 R<sub>Ao</sub>

7 R<sub>R</sub> R<sub>G</sub> R<sub>B</sub> R<sub>W</sub> OUTR/G/B/W OUTR/G/B/W

$R_R/R_G/R_B/R_W = (V_{CC} - N * V_{LED} - V_{DS}) / I_{LED}$  VCC V<sub>LED</sub> LED I<sub>LED</sub>

V<sub>DS</sub> OUTR/G/B/W 1V OUTR/G/B/W

OUTR/G/B/W OUTR/G/B/W V<sub>DS</sub> 3.0V

V<sub>LED</sub> 2.2V 3.2V 3.2V

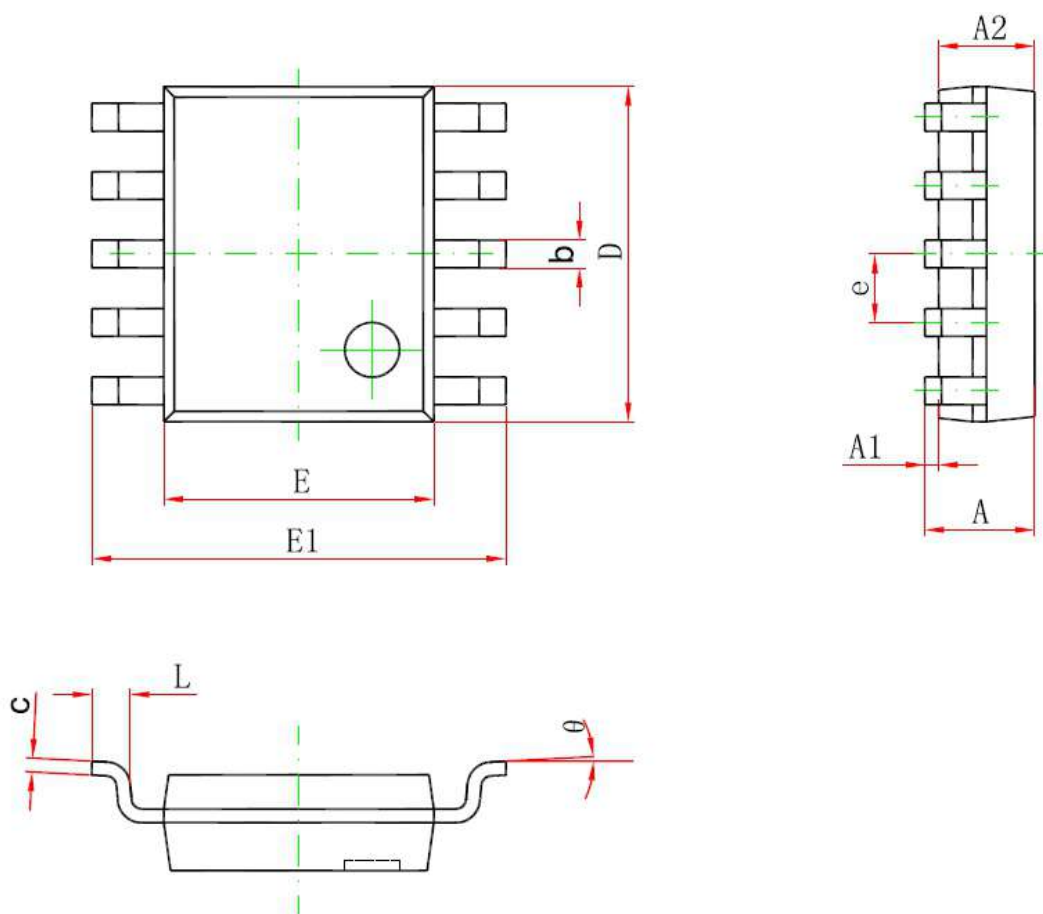
3.2V

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VCC	OUTRG,BW LED	R <sub>D</sub> ( )	C <sub>D</sub> nF	R <sub>A</sub> ( )	R <sub>B</sub> ( )	R <sub>A1</sub> ( )	R <sub>A0</sub> ( )	R <sub>R</sub> ( )	R <sub>G</sub> ( )	R <sub>B</sub> ( )	R <sub>W</sub> ( )
12V	3	1K	100	10K	10K	510	510	150			
24V	6	3K	100	10K	10K	510	510	510	150	150	150

SSOP10



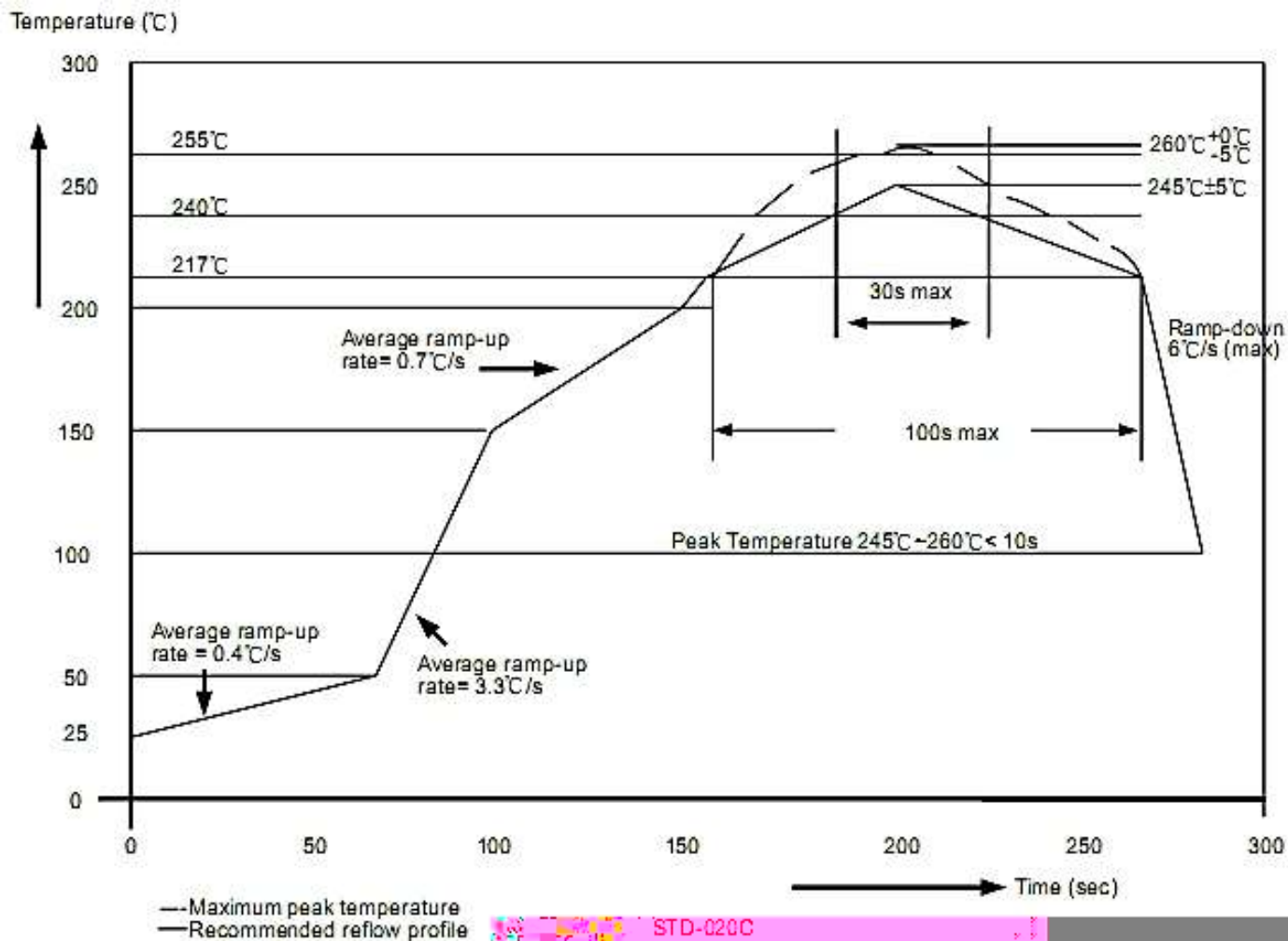
Symbol	Millimeters		Inchs	
	Mn	Max	Mn	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.300	0.450	0.012	0.018
c	0.170	0.250	0.007	0.010
D	4.700	5.100	0.185	0.201
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.000(BSC)		0.039(BSC)	
L	0.400	1.270	0.016	0.050
	0°	8°	1°	8°

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RoHs

J-STD-020



	mm <sup>3</sup> < 350	mm <sup>3</sup> 350-2000	mm <sup>3</sup> 2000
<1.6mm	260+0°C	260+0°C	260+0°C
1.6mm~2.5mm	260+0°C	250+0°C	245+0°C
2.5mm	250+0°C	245+0°C	245+0°C

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