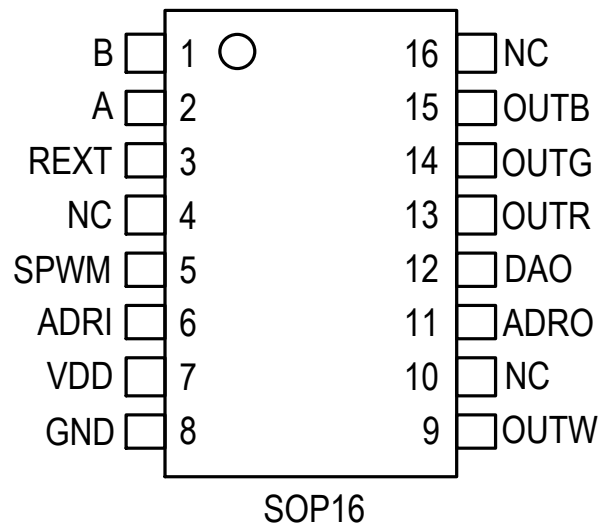


# SM18512P

- ◆ 5V~36V
- ◆ DMX512(1990)
- ◆ 200kbps~750kbps
- ◆ 4096
- ◆ OUT R/G/B/W
- ◆
- ◆
- ◆
- ◆
- ◆ / /
- ◆ OUT 7
- ◆
- ◆ 2
- ◆ SPWM OUT
- ◆ OUT PWM 4KHz
- ◆ OUT PWM 4KHz
- ◆ SPWM 256
- ◆ 1/2/3/4
- ◆ REXT OUTR/G/B/W 18mA
- ◆ REXT 60mA
- ◆ OUT R/G/B/W 5bit
- ◆ OUT R/G/B/W 40V
- ◆
- ◆ SOP16
- ◆
- ◆ LED
- ◆ LED /
- ◆
- ◆

SM18512P  
LED  
1990  
REXT  
18mA REXT  
60mA  
R/G/B/W 32  
SM18512P  
MOSFET

DMX512  
OUT R/G/B/W  
OUT  
OUT  
4KHz PWM  
OUT



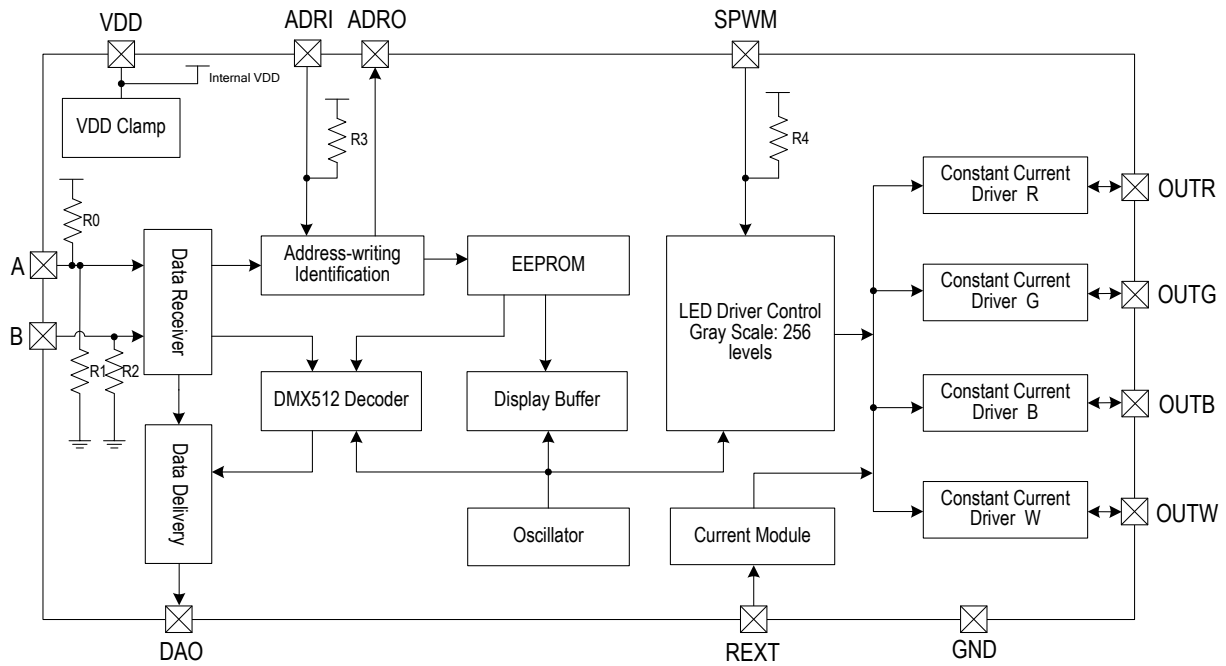


Fig.SM18512P

1	B	-
2	A	+
3	REXT	REXT GND OUTR/G/B/W
4,10,16	NC	
5	SPWM	SPWM R/G/B/W OUT 4KHZ OUT R/G/B/W 4KHZ
6	ADRI	
7	VDD	5V
8	GND	
9,13-15	OUT W/R/G/B	
11	ADRO	
12	DAO	

--	--	--

1

TA=25°C

VDD			-0.4~5.5	V
Vi			-0.4~VDD+0.4	V
BV <sub>OUT</sub>	OUTR/G/B/W		45	V
I <sub>OUT</sub>	OUTR/G/B/W		65	mA
I <sub>damp</sub>	VDD		20	mA
R <sub>θJA</sub>	PN	2	90	°C/W
P <sub>D</sub>		3	0.9	W

T<sub>J</sub>

4 5

VDD=5V TA=25°C

VDD		VCC=12V VCC VDD R <sub>D</sub> =1KΩ	4.8	5.2	5.4	V
I <sub>DD</sub>	( )	VDD = 5V REXT I <sub>OUT</sub> "OFF"	-	3.8	-	mA
	( )	VDD = 5V REXT I <sub>OUT</sub> "ON"	-	5.1	-	mA
V <sub>REXT</sub>	REXT	REXT 10K	-	1.18	-	V
I <sub>OH</sub>	DAO	DAO GND	-	-37	-	mA
I <sub>OL</sub>		DAO VDD	-	36	-	mA
I <sub>OUT_RGBW</sub>	OUT R/G/B/W	REXT D5:D4:D3:D2:D1=11111	-	18	-	mA
		REXT Rext1.8KΩ D5:D4:D3:D2:D1=11111	-	60	-	
dI <sub>OUT_RGBW</sub>	OUT R/G/B/W	REXT I <sub>OUT</sub> =18mA	-	±3	-	%
		REXT 1.8KΩ GND I <sub>OUT</sub> =60mA	-	±5	-	%
R <sub>down_AB</sub>	A/B	VDD=4.5V	-	200	-	KΩ
R <sub>UP_A</sub>	A	VDD=4.5V	-	250	-	KΩ
V <sub>CM</sub>		-	-	-	12	V
I <sub>AB</sub>		-	-	-	28	uA
V <sub>TH</sub>		VDD = 5V B=2.5V A	-200	-	200	mV
ΔV <sub>TH</sub>		VDD = 5V B=2.5V A	-	80	-	mV
V <sub>DS_S</sub>	I <sub>OUT</sub>	I <sub>OUT</sub> = 18mA	-	0.3	-	V
		I <sub>OUT</sub> = 30mA	-	0.6	-	V
		I <sub>OUT</sub> = 60mA	-	1.1	-	V
% VS V <sub>DS</sub>	OUT R/G/B/W	I <sub>OUT</sub> =18mA, V <sub>DS</sub> =1~3V	-	1	-	%
%VS VDD		I <sub>OUT</sub> =18mA, V <sub>DS</sub> =4.5~5.5V	-	1	-	
%VS TA		I <sub>OUT</sub> =18mA, TA =-40~+85	-	4	-	
R <sub>UP</sub>	ADRI	-	-	23	-	KΩ
OTP		-	-	135	-	
I <sub>leak</sub>	OUT R/G/B/W	I <sub>OUT</sub> "OFF", V <sub>DS</sub> = 40V	-	-	1	uA

4

5

VDD=5V TA = 25°C

f <sub>PWM</sub>	OUT R/G/B/W PWM	I <sub>OUT</sub> =18mA OUT R/G/B/W 200Ω VDD	SPWM	-	4K	-	Hz	
			SPWM GND	-	4K	-		
t <sub>PLH</sub>	6	DAO	30pF		-	270	-	ns
t <sub>PHL</sub>			DAI DAO	-	270	-	ns	
t <sub>TLH</sub>	7	DAO	30pF		-	15	-	ns
t <sub>THL</sub>			-	15	-	ns		
t <sub>r</sub>	8	I <sub>OUT</sub> =16mA OUT R/G/B/W VDD	100Ω	-	100	-	ns	
t <sub>f</sub>			15pF	-	170	-	ns	

6 7 8

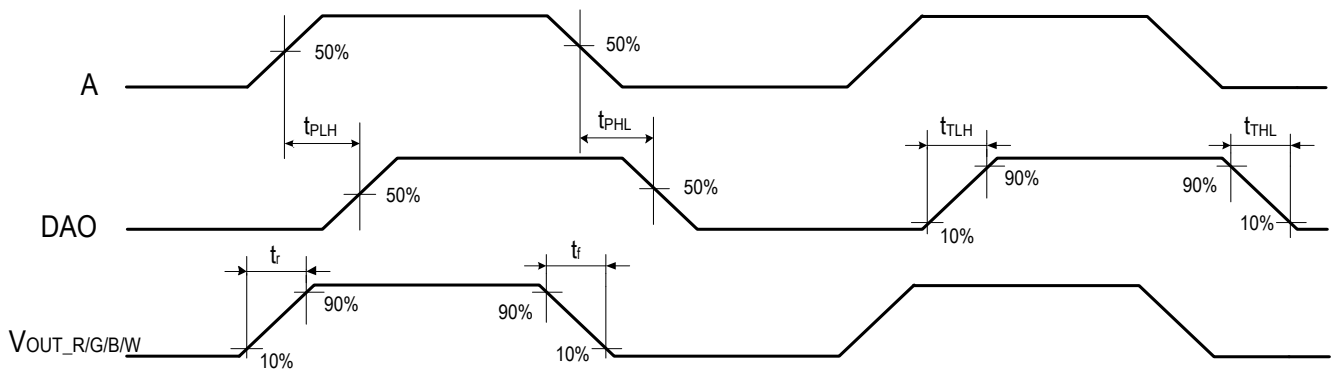


Fig. SM18512P

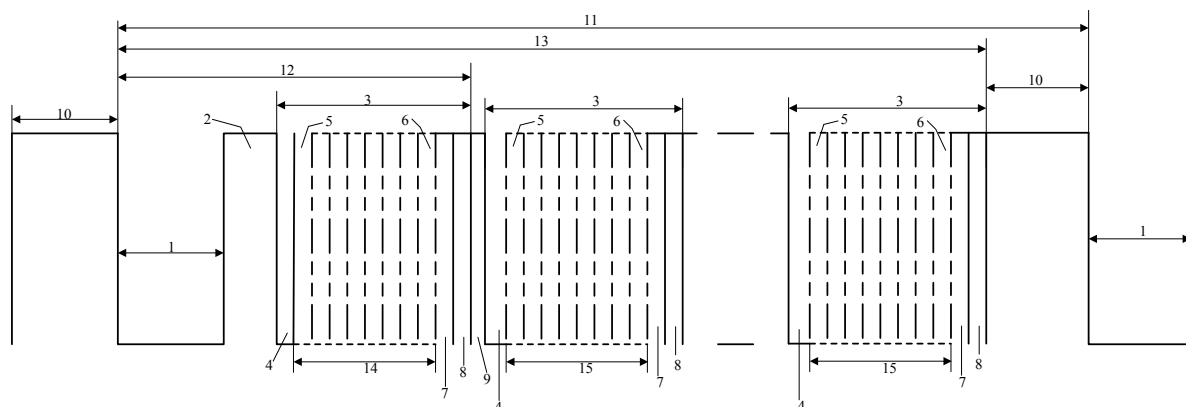


Fig. DMX512(1990)

Figuer Key

- 1- "SPACE" for BREAK
- 2- "MARK" After BREAK (MAB)
- 3- Slot Time
- 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 (MAB)
- 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 (Maximun 512)

Designation	Description	Min	Typical	Max	Unit
-	Bit Rate	245	250	255	kbit/s
-	Bit Time	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 (MAB)	0	-	<1.00	s
11	BREAK to BREAK Time	1196	-	-	us
13	DMX512 Packet	1196	-	-	us

1 DMX512 1990

2 MAB

SM18512P OUT I<sub>OUT</sub> OUT V<sub>DS</sub> I<sub>OUT</sub>  
V<sub>DS</sub>

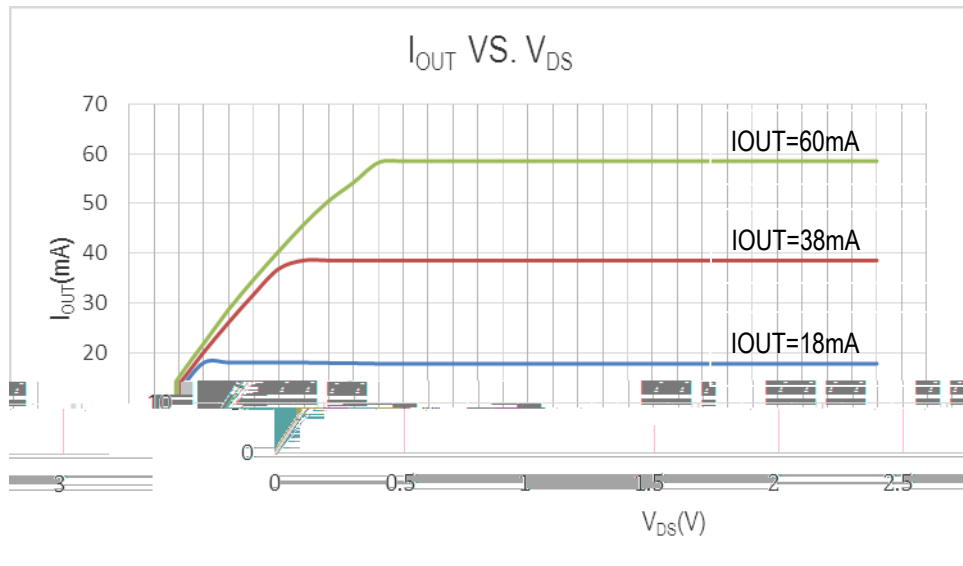


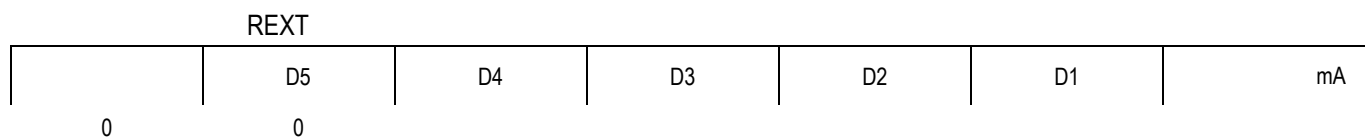
Fig. SM18512P I<sub>OUT</sub> OUT V<sub>DS</sub>

REXT SM18512P OUT R/G/B/W 18mA REXT OUT  
R/G/B/W 60mA SM18512P ( G)

$$I_{OUT} = 18 + 80 / R_{EXT}(K\Omega) * 0.07 + 0.03 * G \quad (mA)$$

I<sub>OUT</sub> G 31 R<sub>EXT</sub>  
R<sub>EXT</sub>=1.9KΩ G=31 OUT RGBW 60mA

SM18512P    OUT RGBW    5bits    D5~D1





1

2

ADRI

1

3

2

1

2

2

1

2

2

1

/ /

2

/

3

/

4

5

SM18512P

1

2

## OUT

SM18512P

1

2 OUT

0~6

OUT

260ns 0

**业务电话：400-033-6518**

注：如需最新资料或技术支持，请与我们联系。

SM18512P

DMX512 1990

4095

A/B

1 SM18512P RGBW

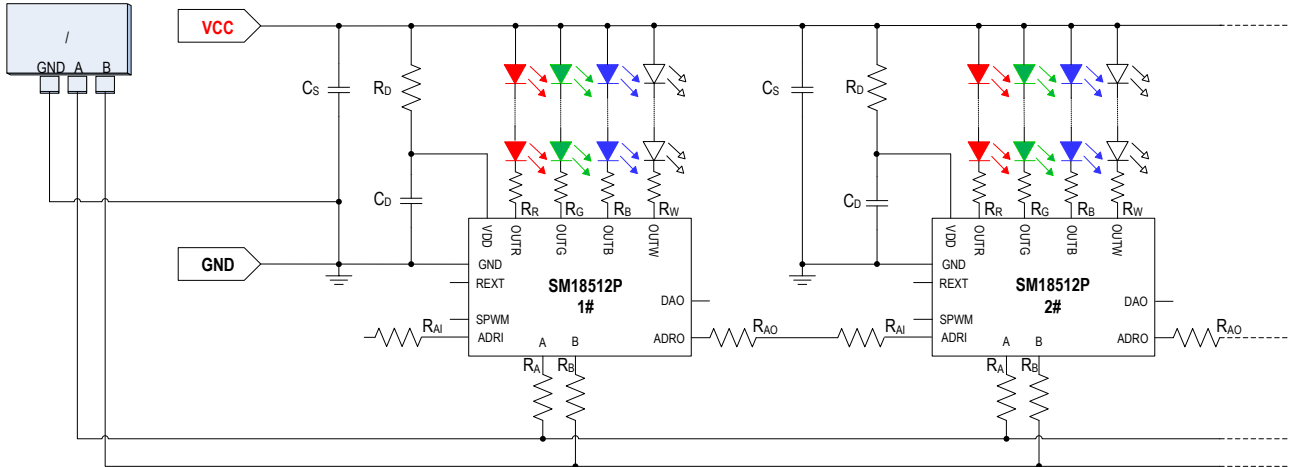


Fig. SM18512P

SM18512P VCC RD CS R/G/B/W LED  
 RR RG RB RW RA0 A/B RA RB

1 VCC

RD

$$V_{DD} = V_{CC} - (I_{DD} + I_{IN}) * R_D$$

I<sub>IN</sub>

I<sub>DD</sub>

RD

V<sub>DD</sub> > 3V

RD

RD

RD

VCC

RD

VCC V	5V	6V	9V	12V	15V	18V	24V	36V
RD Ω	33	68	300	1.0K	1.5K	2.0K	3.0K	2.4K+2.4K

2 CS

0.1uF-10uF

3 CD

VDD

CD

100nF

4 RA RB A/B

A B

5 RA0

7 RR RG RB RW OUTR/G/B/W

OUTR/G/B/W

$$R_R/R_G/R_B/R_W = \frac{V_{CC} - N * V_{LED} - V_{DS}}{I_{LED}}$$

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

V<sub>DS</sub>

3.0V

3.2V

V<sub>LED</sub>

2.2V

3.2V

3.2V

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REXT

$V_{IN}$	OUTR/G/B/W LED	$R_D(\Omega)$	$C_D$ nF	$R_A(\Omega)$	$R_B(\Omega)$	$R_{AI}(\Omega)$	$R_{AO}(\Omega)$	$R_R(\Omega)$	$R_G(\Omega)$	$R_B(\Omega)$	$R_W(\Omega)$
12V	3	1K	100	10K	10K	510	510	150			
24V	6	3K	100	10K	10K	510	510	510	150	150	150

2 SM18512P+SM15133E

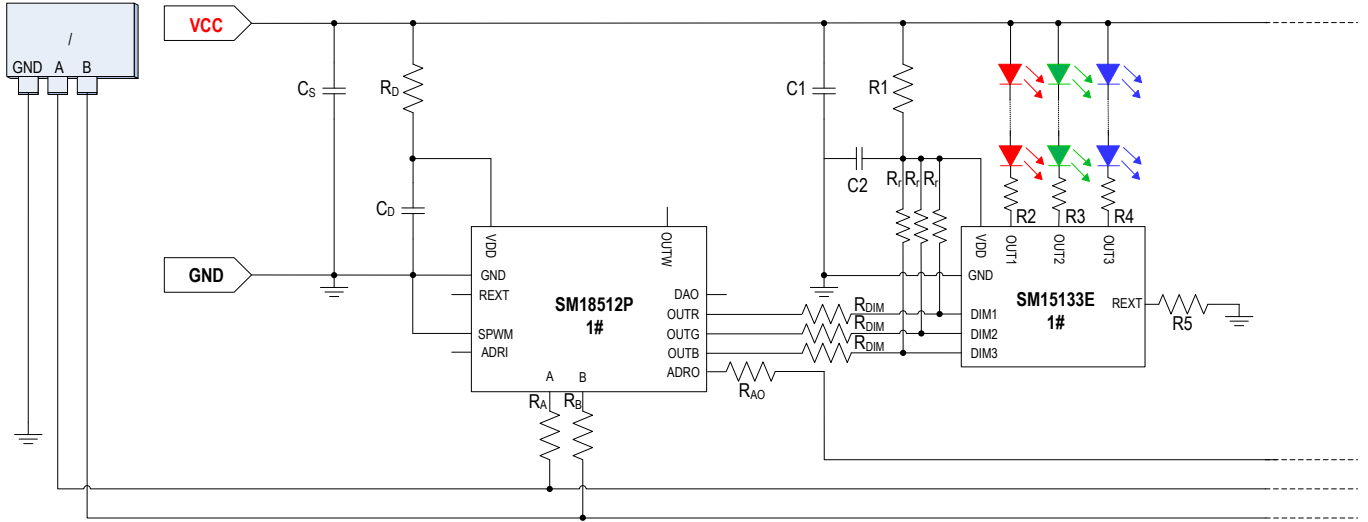
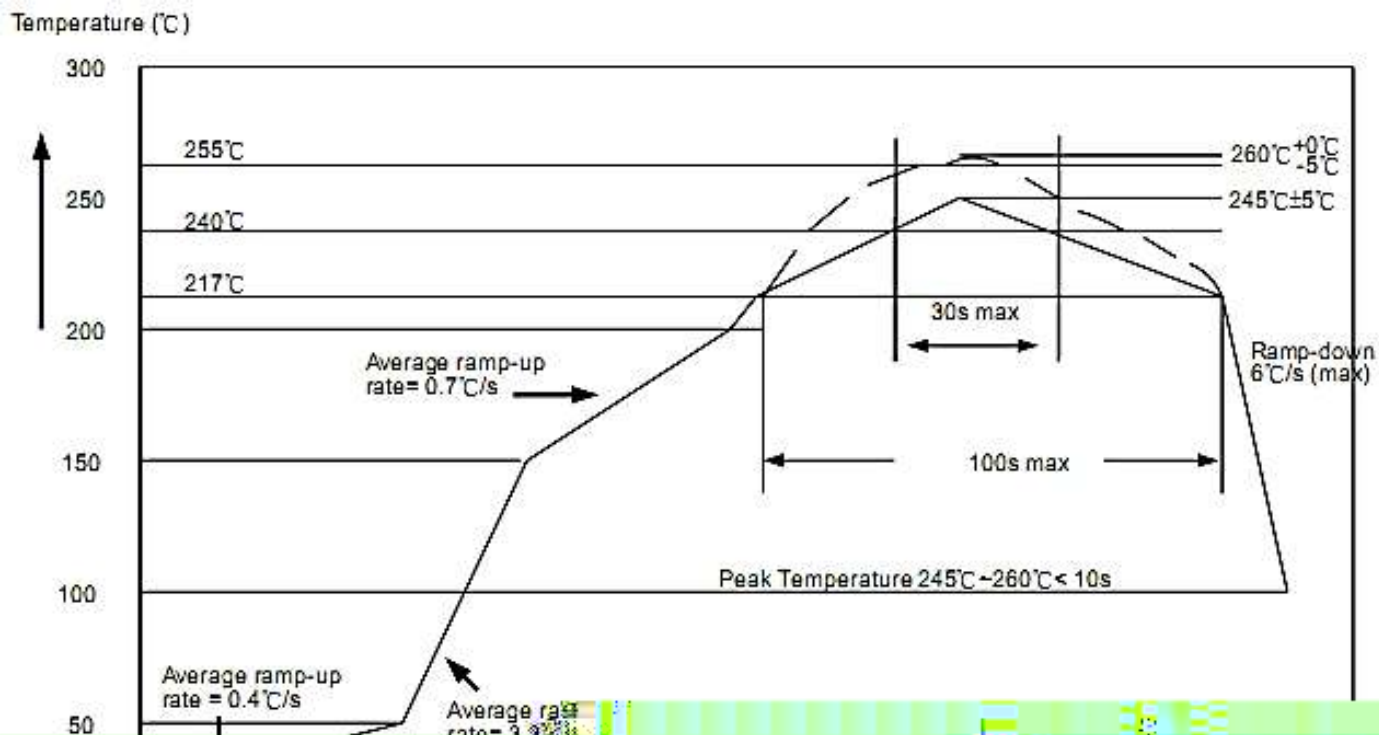


Fig. SM18512P+SM15133E

- 1 SM18512P
- 2 EMC
- 3 RS485
- 4 SM15133E 150mA
- 5 SM15133E
- 6 OUT 5.1K

RoHs

J-STD-020

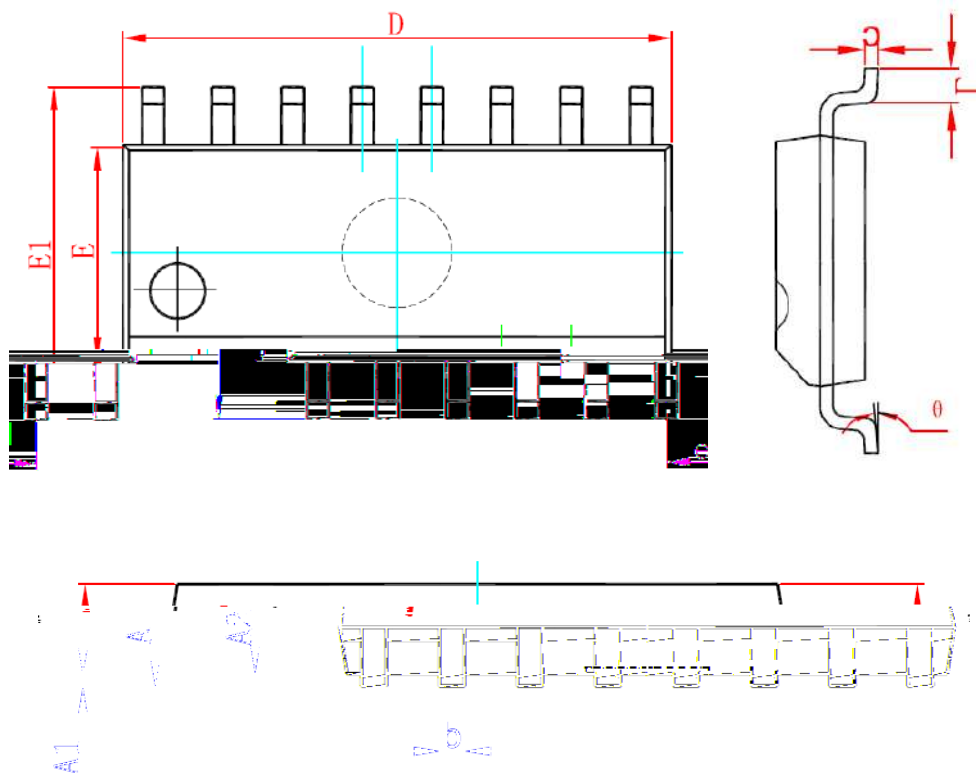


	mm <sup>3</sup> < 350	mm <sup>3</sup> 350~2000	mm <sup>3</sup> ≥ 2000
<1.6mm	260+0°C	260+0°C	260+0°C
1.6mm~2.5mm	260+0°C	250+0°C	245+0°C
≥2.5mm	250+0°C	245+0°C	245+0°C

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SOP16



Symbol	Min(mm)	Max(mm)
A	-	1.95
A1	-	0.25
A2	1.25	-
b	0.25	0.7
c	0.1	0.35
D	9.7	10.4
E	3.7	4.2
E1	5.7	6.4
e	1.27(BSC)	
L	0.2	1.5
$\theta$	0°	10°

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