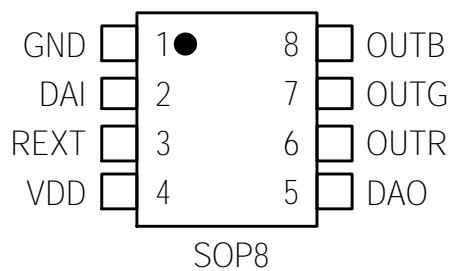


# DMX512AW

5~24V  
 OUTR/G/B 18mA REXT  
 REXT 60mA  
 OUTR/G/B  
 OUTR/G/B 30V  
 OUTR/G/B 256  
 PWM 3.6KHz  
 250kbps~750kbps  
 DMX512(1990)  
 DMX512  
 SOP8

DMX512AW LED  
 DMX512(1990)  
 DMX512AW  
 DMX512AW 18mA REXT  
 REXT OUTR/G/B  
 60mA

LED  
 LED /



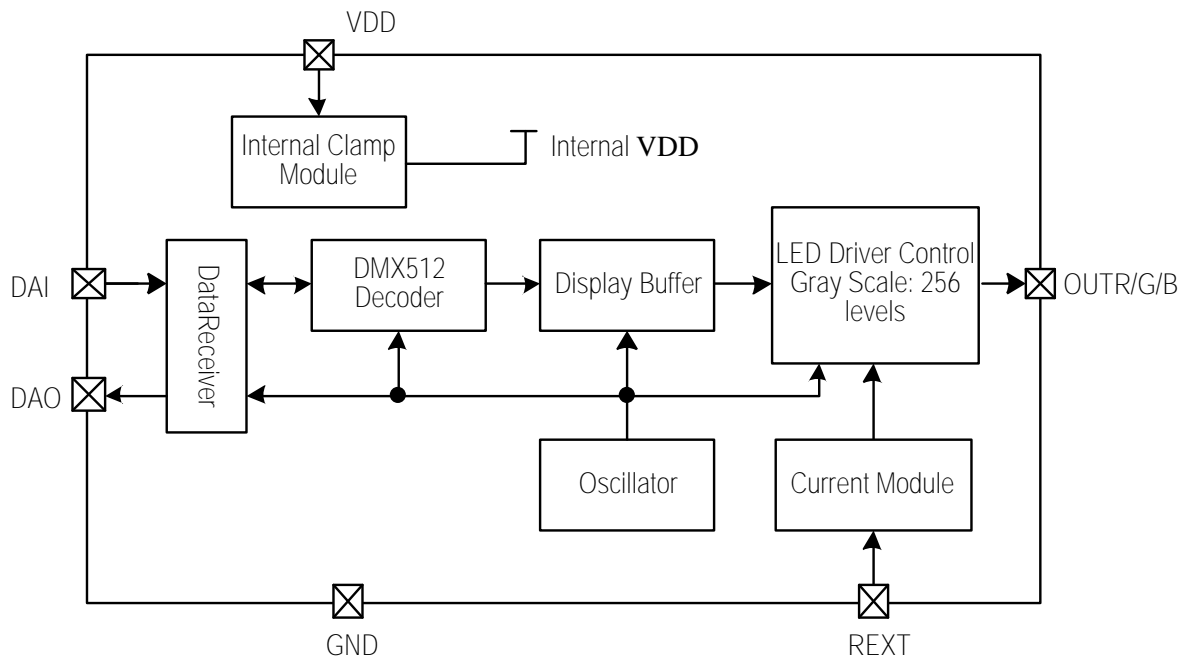


Fig. DMX512AW

1	GND	
2	DAI	
3	REXT	REXT GND OUT R/G/B
4	VDD	
5	DAO	
6	OUTR	
7	OUTG	
8	OUTB	

DMX512AW	SOP8	100000 /	4000 /
			13

1

T<sub>A</sub>=25°C

VDD			-0.4~+5.5	V
V <sub>I</sub>			-0.4-VDD+0.4	V
BV <sub>OUT</sub>	OUT R/G/B		35	V
I <sub>OUT</sub>	OUT R/G/B		60	mA
R <sub>JA</sub>	PN	2	130	°C/W
P <sub>D</sub>		3	0.5	W
T <sub>J</sub>			-40~150	°C
T <sub>STG</sub>			-55~150	°C
V <sub>ESD</sub>	HBM		2	KV

1

2 R<sub>JA</sub> T<sub>A</sub>=25°C

JEDEC JESD51

3

T<sub>JMAX</sub> R<sub>JA</sub>

T<sub>A</sub>

P<sub>D</sub> = (T<sub>JMAX</sub>-T<sub>A</sub>)/R<sub>JA</sub>

4 5

VDD=5V T<sub>A</sub>=25°C

VDD		VCC=12V VCC VDD R <sub>D</sub> =1K	5.0	5.3	5.5	V
I <sub>DD</sub>		VDD=4.5V I <sub>OUT</sub> "OFF"	-	2	-	mA
V <sub>REXT</sub>	REXT	-	-	1.2	-	V
V <sub>IH</sub>		DAI	0.7xVDD	-	-	V
V <sub>IL</sub>		DAI	-	-	0.3xVDD	V
I <sub>OH</sub>	DAO	DAO 2 GND	-	-55	-	mA
I <sub>OL</sub>	DAO	DAO DAO	-	70	-	mA
I <sub>OUT_R/G/B</sub>	OUT R/G/B	V <sub>DS</sub> =2V	18	-	60	mA
V <sub>DS</sub>	OUT R/G/B	I <sub>OUT</sub> =18mA	-	0.7	-	V
		I <sub>OUT</sub> =36mA	-	1.0	-	V
		I <sub>OUT</sub> =60mA	-	1.4	-	V
%V <sub>S.VDS</sub>	OUT R/G/B	I <sub>OUT</sub> =18mA V <sub>DS</sub> =1.0~3.0V	-	1.0	-	%
%V <sub>S.VDD</sub>		I <sub>OUT</sub> =18mA VDD=4.2~5.2V	-	1.0	-	%
%V <sub>S.TA</sub>		I <sub>OUT</sub> =18mA T <sub>A</sub> =-40~+85	-	-	6.0	%
I <sub>leak</sub>	OUT R/G/B	V <sub>DS</sub> =30V I <sub>OUT</sub> "OFF"	-	-	1	uA

4

5

VDD=5V TA=25°C

$f_{PWM}$	OUT R/G/B PWM	$I_{OUT}=18mA$ OUT R/G/B VDD	200	-	3.6	-	KHz
$t_{PLH}$	6	DAO	30pF	-	13	-	ns
$t_{PHL}$		DAI DAO		-	13	-	ns
$t_{TLH}$	7	DAO	30pF	-	6	-	ns
$t_{THL}$		DAO		-	4	-	ns
$t_r$	OUT R/G/B	$I_{OUT}=36mA$ OUT R/G/B VDD	100	-	90	-	ns
$t_f$	8		15pF	-	120	-	ns

6 7 8

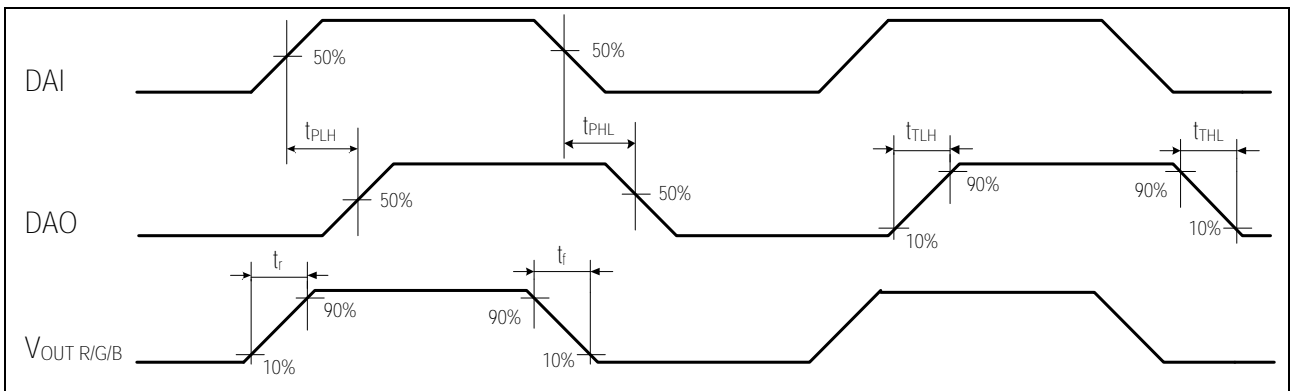


Fig. SM16813P

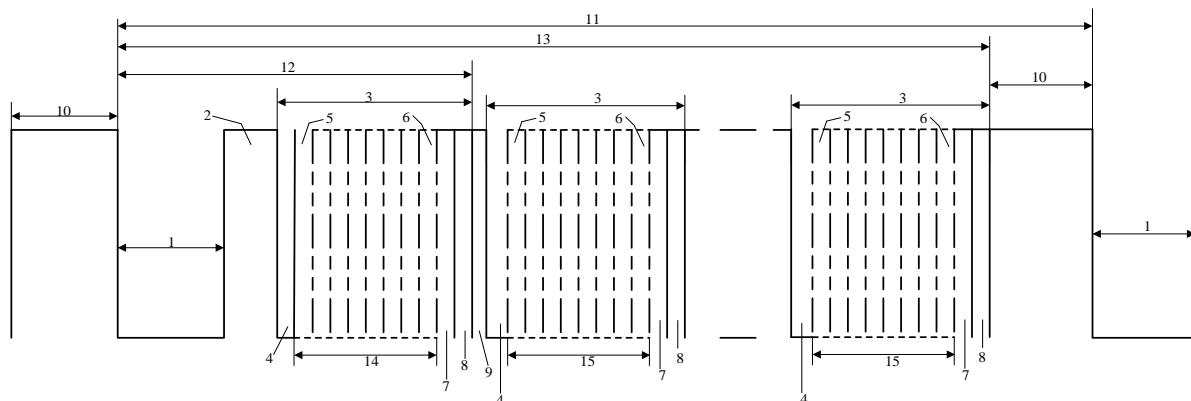


Fig. DMX512(1990)

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 (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 (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
				<1.00	s
9	"MARK" Time Between slots	0	-	<1.00	s
10	"MARK" Before BREAK (MBB)	0	-	<1.00	s
11	BREAK to BREAK Time	1196	-	-	us
				1.00	s
13	DMX512 Packet	1196	-	-	us
				1.00	s

DMX512(1990)

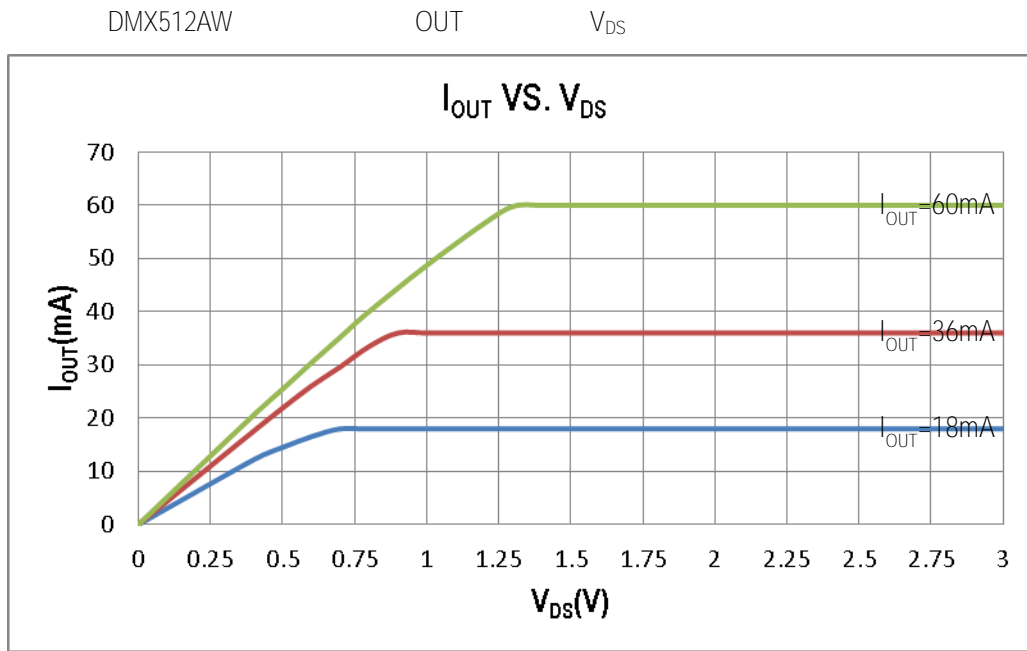


Fig. DMX512AW I<sub>OUT</sub> vs V<sub>DS</sub>

REXT                      OUTR/G/B/W                      18mA

REXT                      REXT    GND                      60mA                      I<sub>OUT</sub>    REXT

$$I_{OUT} (mA) = 18 + \frac{V_{REXT}}{R_{EXT}} \times 30 \times 1000$$

VREXT    REXT                      VREXT = 1.2V

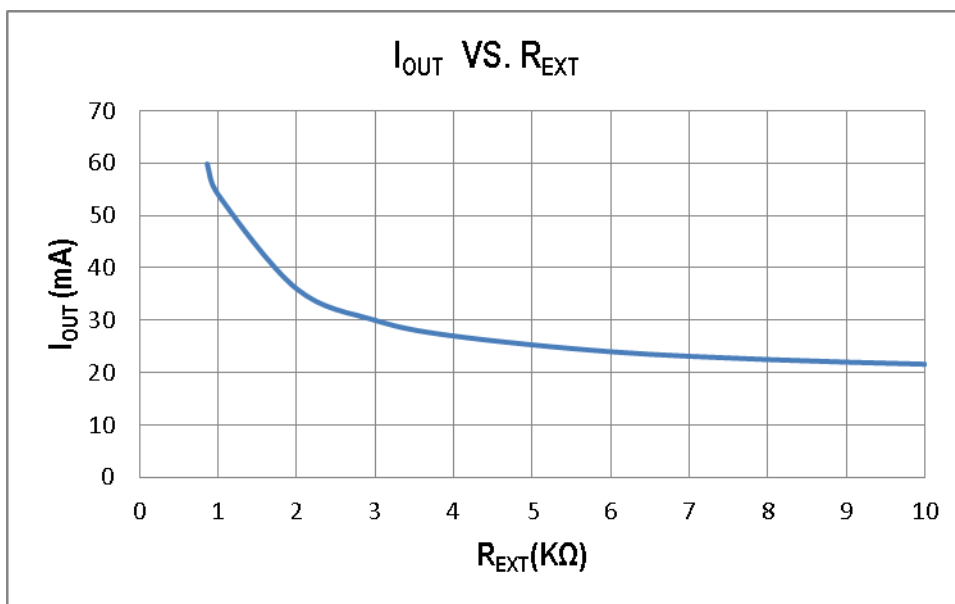


Fig. DMX512AW I<sub>OUT</sub> vs R<sub>EXT</sub>

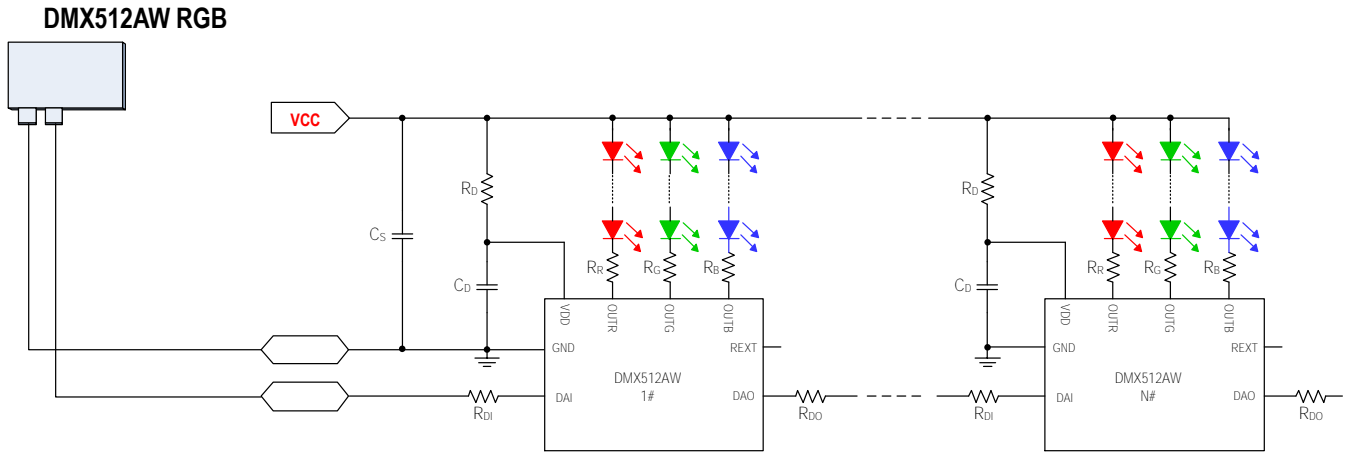


Fig. DMX512AW

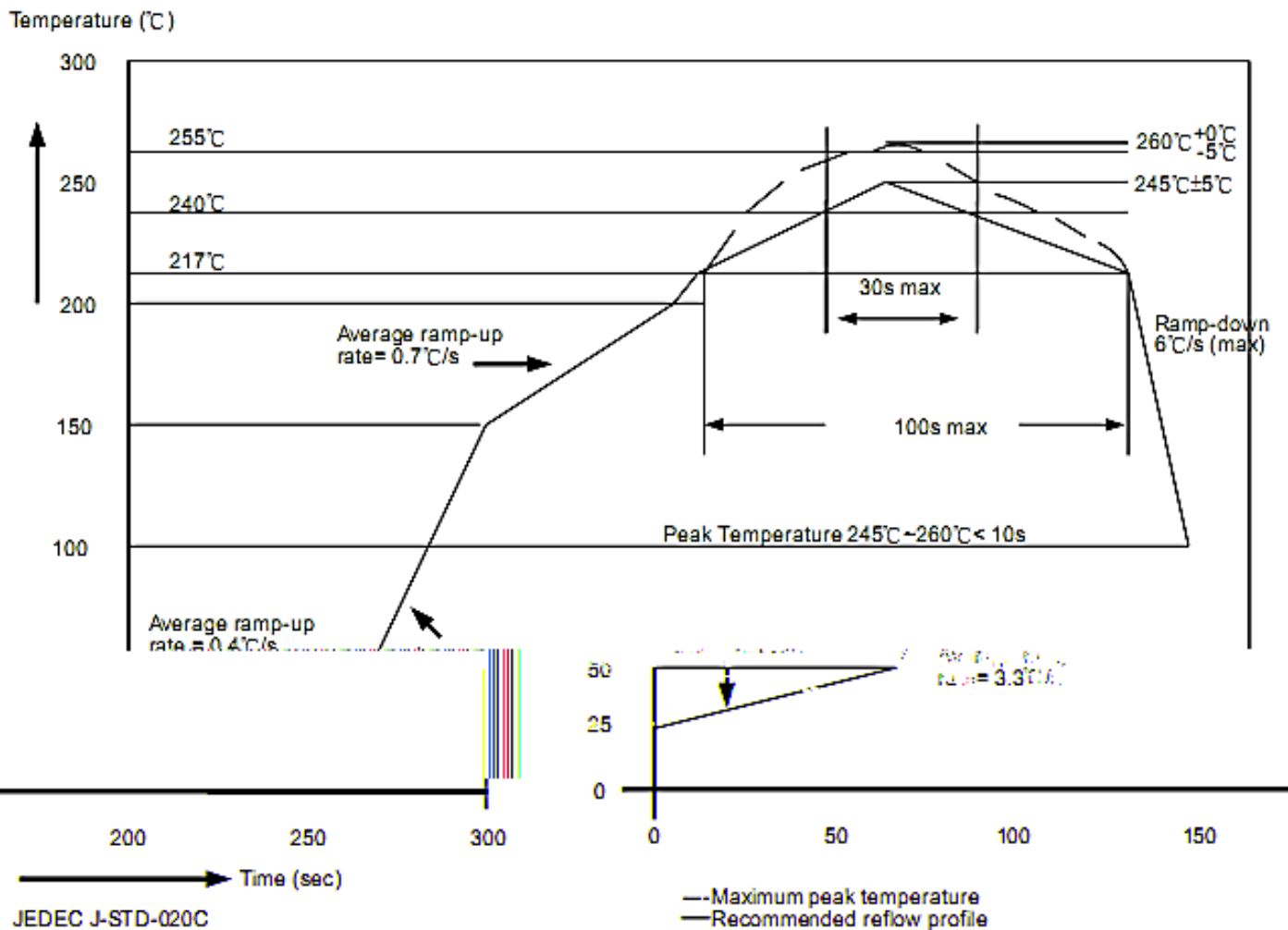
DMX512AW	VCC	CS	RD	VDD				
CD	R/G/B LED	RR	RG	RB	DAI	RDI	DAO	RDO
1	VCC	RD						
	$VDD = VCC \cdot I_{DD} \times R_D$	$I_{DD}$	$R_D$	$VDD > 4V$	$R_D$			$R_D$
2	CS							0.1uF~10uF
3	CD	VDD				CD		100nF
4	RDI	DAI						
5	RDO	DAO						
6	RR	RG	RB	OUTR/G/B	OUTR/G/B			
	$R_R / R_G / R_B = \frac{VCC \cdot N \cdot V_{LED} \cdot V_{DS}}{I_{LED}}$							
	VCC	VLED	LED	ILED	VDS	OUTR/G/B	OUTR/G/B	
	OUTR/G/B		VDS	3.0V				VLED
		OUTR/G/B		3.0-3.2V	3.0-3.2V			

VCC(V)	OUT LED	R <sub>D</sub> ( )	C <sub>D</sub> (nF)	R <sub>DI</sub> ( )	R <sub>DO</sub> ( )	R <sub>R</sub> ( )	R <sub>G</sub> ( )	R <sub>B</sub> ( )
5	1	33	100					
12	3	1K	100	51	150	150		
24	6	K	100	100	300	510	150	150



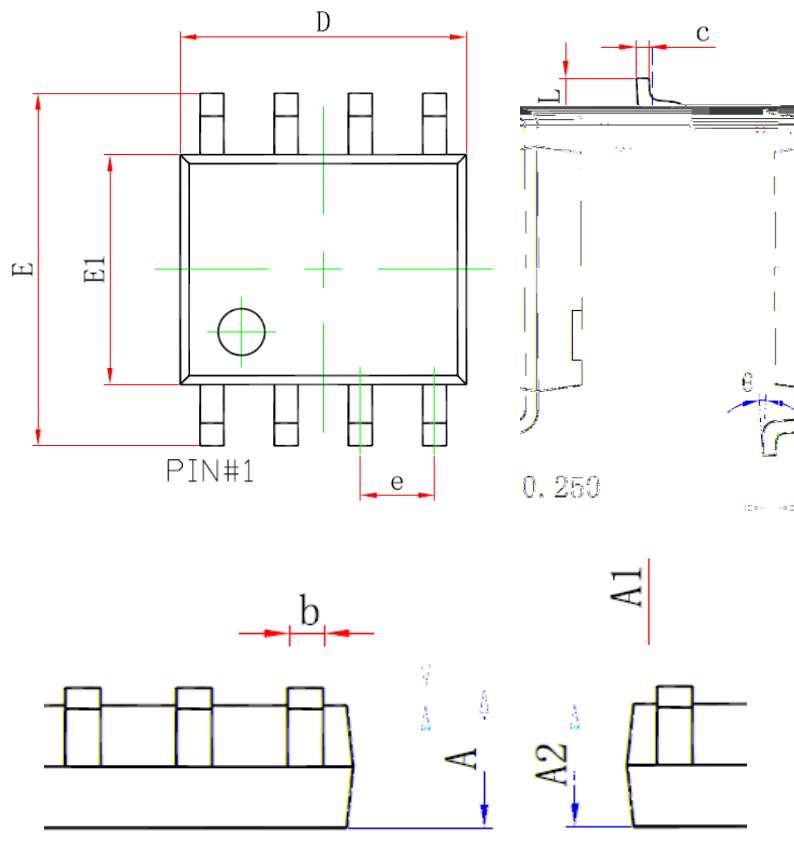
RoHs

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

SOP8



Symbol	Min(mm)	Max(mm)
A	1.25	1.95
A1	-	0.25
A2	1.25	1.75
b	0.25	0.7
c	0.1	0.35
D	4.6	5.3
e	1.27(BSC)	
E	5.7	6.4
E1	3.7	4.2
L	0.2	1.5
	0°	10°

