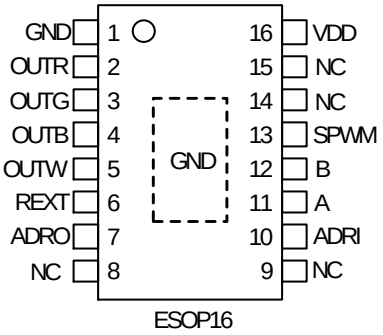
SM18522PH

- 5V-36V
- DMX512(1990)
- 200kbps~700kbps
- 4096
- OUT R/G/B/W
- /
- OUT 7
- OUT Gamma 2.2/2.0
- 2
- SPWM OUT
  OUT PWM 4KHz
  OUT PWM 4KHz
- SPWM 65536 GAMMA
- 1/2/3/4
- REXT 300mA
- OUT R/G/B/W 5bit
- OUT R/G/B/W 40V
- ESOP16
- LED
- LED /

SM18522PH
LED DMX512
1990

SM18522PH
PWM
REXT
OUT 300mA
OUT R/G/B/W 32 OUT
4KHz PWM



ESOP16

1

T_A=25° C

VDD		-0.4~5.4	V
V_I		-0.4~VDD+0.4	V
BV_{OUT}	OUTR/G/B/W	40	V
I_{OUT}	OUTR/G/B/W	300	mA
Idamp	VDD	20	mA
RθJA	PN 2	60	° C/W
P_D	3	1.5	W
T_J		-40~150	° C
T_{STG}		-55~150	° C
V_{ESD}	HBM	4	KV

1

2 RθJA T_A=25° C JEDEC JESD51

3 T_{JMAX} RθJA T_A $P_D = (T_{JMAX} - T_A)/R\theta JA$

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4 5

VDD=5V T_A = 25° C

VDD		VCC=12V VCC VDD R_{IN}=680Ω	4.8	5.2	5.4	V
I_{DD}	( )	VDD =5V Rext=3.9K I_{OUT}"OFF"	-	3.7	-	mA
	( )	VDD =5V Rext=3.9K I_{OUT}"ON"	-	7	-	mA
V_{REXT}	REXT	REXT 3.9K	-	1.18	-	V
I_{OUT_RGBW}	OUT R/G/B/W	REXT Rext=7KΩ D5:D4:D3:D2:D1=11111	-	150	-	mA
dI_{OUT_RGBW}	OUTR/G/B/W	REXT 7KΩ GND I_{OUT}=150mA	-	± 5	-	% %
R_{down_AB}	A/B	VDD=4.5V	-	200	-	KΩ
R_{UP_A}	A	VDD=4.5V	-	1	-	MΩ
V_{CM}		-	-	-	12	V
I_{AB}		-	-	-	28	uA
VTH		VDD = 5V B=2.5V A	-200	-	200	mV
VTH		VDD = 5V B=2.5V A	-	80	-	mV
		I_{OUT}=60mA	-	0.3	-	V
V_{DS_S}	I_{OUT}	I_{OUT}=120mA	-	0.5		

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VDD=5V T_A = 25℃

f_{PWM}	OUT R/G/B/W PWM	I_{OUT}=150mA OUT R/G/B/W 200Ω VDD	SPWM	-	4K	-	Hz
			SPWM GND	-	4K	-	
t_r	OUT R/G/B/W 8	I_{OUT}=150mA OUT R/G/B/W 100Ω VDD 15pF		-	90	-	ns
t_f				-	20	-	ns

6 7 8

Fig. SM18522PH

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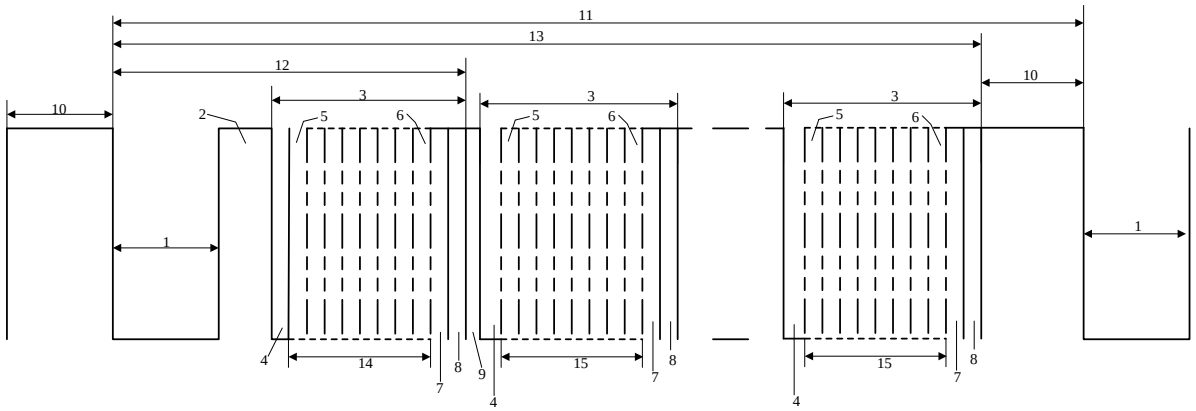

Fig. DMX512(1990)

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 BI
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
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
13	DMX512 Packet	1196	-	-	us

1 DMX512 1990

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SM18522PHOUT I_{OUT} OUT V_{DS} I_{OUT} V_{DS}

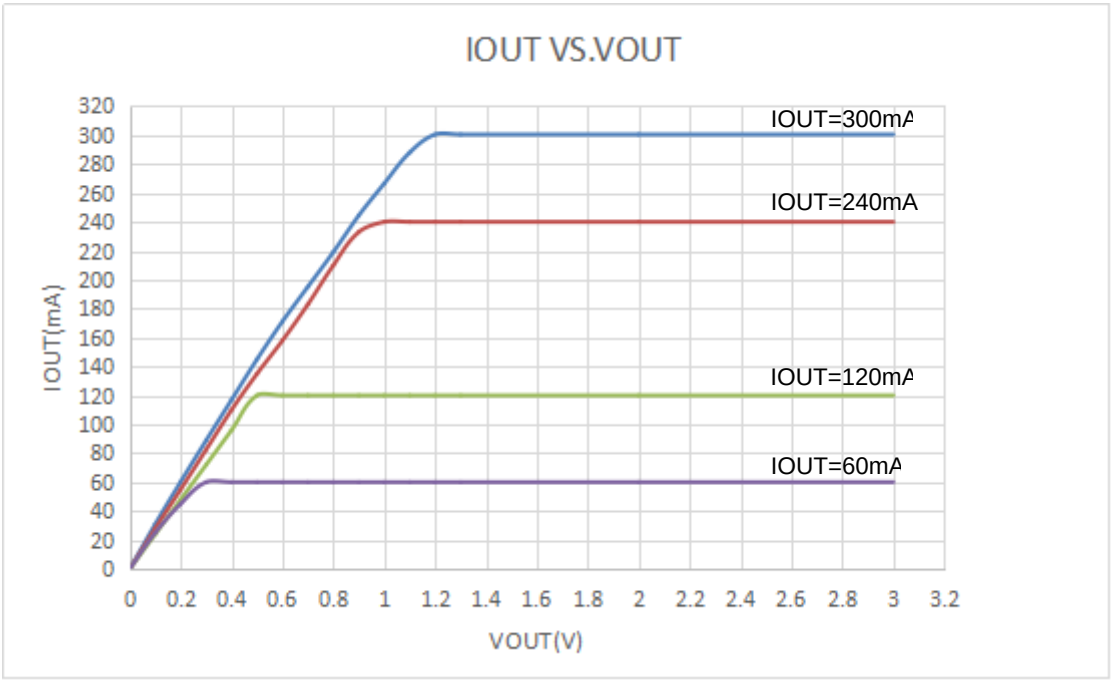

Fig. SM18522PH I_{OUT} OUT V_{DS}

SM18522PHOUT R/G/B/W REXT OUT R/G/B/W 300mA SM18522PH

(G)

$$I \quad '(\quad) \quad \frac{12}{REXT\ (K\Omega)} * (10 + 2.5 * G)$$

R_{EXT}=3.5KΩ G=31 OUT RGBW 300mA

SM18522PH OUT RGBW 5bits D5~D1

REXT=3.5K

	D5	D4	D3	D2	D1	mA
0	0	0	0	0	0	34.3
1	0	0	0	0	1	42.9
2	0	0	0	1	0	51.4
3	0	0	0	1	1	60.0
4	0	0	1	0	0	68.6
5	0	0	1	0	1	77.1
6	0	0	1	1	0	85.7
7	0	0	1	1	1	94.3
8	0	1	0	0	0	102.9
9	0	1	0	0	1	111.4
10	0	1	0	1	0	120.0
11	0	1	0	1	1	128.6
12	0	1	1	0	0	137.1
13	0	1	1	0	1	145.7
14	0	1	1	1	0	154.3
15	0	1	1	1	1	162.9
16	1	0	0	0	0	171.4
17	1	0	0	0	1	180.0
18	1	0	0	1	0	188.6
19	1	0	0	1	1	197.1
20	1	0	1	0	0	205.7
21	1	0	1	0	1	214.3
22	1	0	1	1	0	222.9
23	1	0	1	1	1	231.4
24	1	1	0	0	0	240.0
25	1	1	0	0	1	248.6
26	1	1	0	1	0	257.1
27	1	1	0	1	1	265.7
28	1	1	1	0	0	274.3
29	1	1	1	0	1	282.9
30	1	1	1	1	0	291.4
31	1	1	1	1	1	300.0

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1

2

ADRI 1

3 2

1

2 2

1

2 2

1. / /

2. /

3. /

4.

5.

SM18522P

1

2

OUT

SM18522P

1

2 OUT 0~6 OUT 260ns 0

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V_{LED} 2.2V 3.2V

3.2V 3.2V

IOUT=60mA

V_{IN}	OUTR/G/B/W LED	$R_{IN}(\Omega)$	C_{IN} nF	$R_A(\Omega)$	$R_B(\Omega)$	$R_{AI}(\Omega)$	$R_{AC}(\Omega)$
12V	3	510	100	10K	10K	510	510
24V	6	2K	100	10K	10K	510	510

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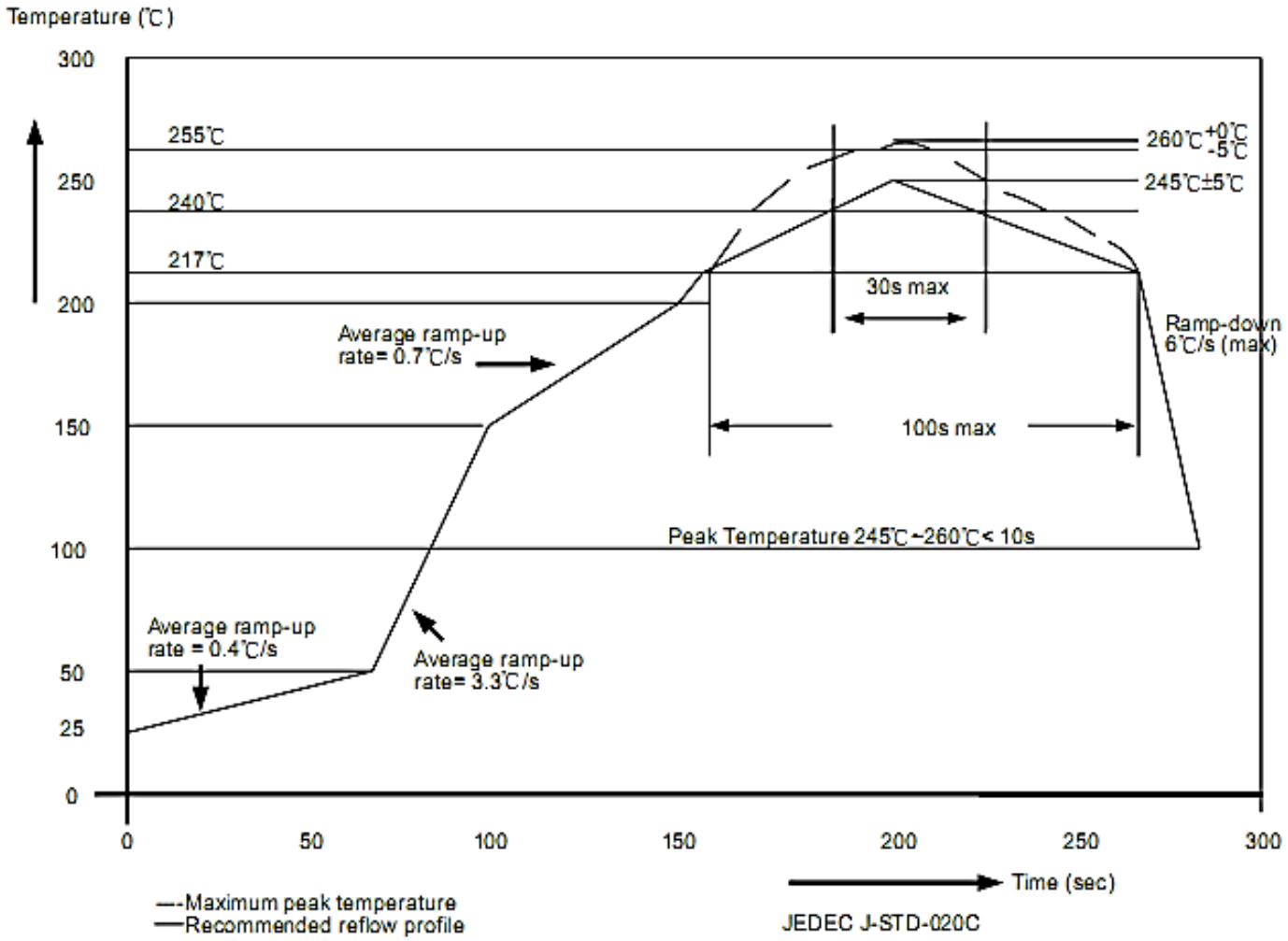
RoHs J-STD020



	mm³< 350	mm³ 350~2000	mm³≥ 2000
<1.6mm	260+0C	260+0C	260+0C
1.6mm~2.5mm	260+0C	250+0C	245+0C
≥2.5mm	250+0C	245+0C	245+0C

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