车载 HUD 系统的散热

TI 0.3inch DMD 显示方案 ：

系统指标：

- 最大亮度 90lm
- 最大发热功耗~ 7W
  - 不同场景功耗：

HUD Brightness	Calculated Luminous Output	Measured System Power (W)
Max Brightness	90 lumens	7.1
Medium Brightness	75 lumens	5.9
Low Brightness	25 lumens	2.9
Min Brightness	0.018 lumens	1.8

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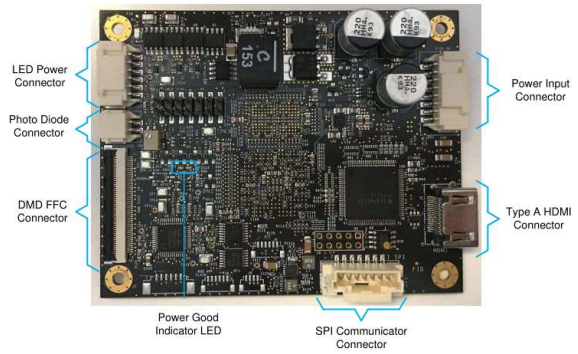
- 光学方案：RGB LED
- 存储温度：-40---105 ℃



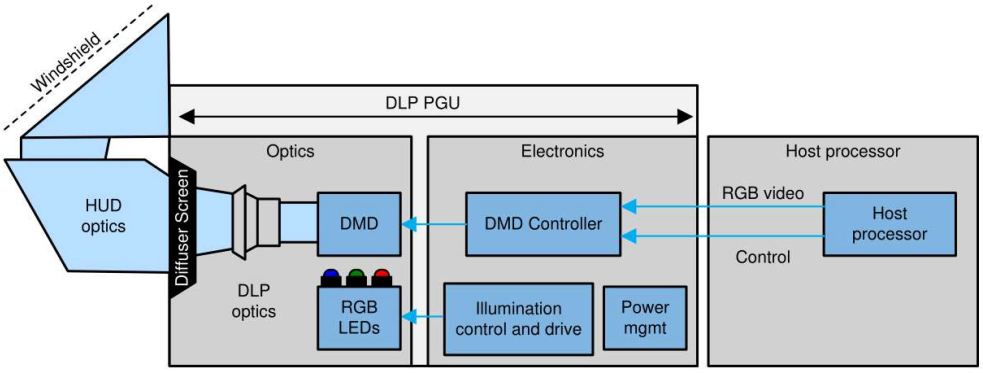


Figure 2. Head-up Display System Block Diagram

DMD 芯片规格：

over operating free-air temperature range (unless otherwise noted)

		MIN	NOM	MAX	UNIT
VDD	1.2-V supply voltage, core logic	1.14	1.2	1.26	V
VCCA	Analog voltage for PLL	1.14	1.2	1.26	V
VCCIO_0	DDR2 memory interface	1.71	1.8	1.89	V
VCCIO_1	1.8-V supply voltage for DMD	1.71	1.8	1.89	V
VCCIO_2	Pixel interface supply voltage	3.135	3.3	3.465	V
VDDQ	EFuse programming voltage	0.0	0.0	0.0	V
T_J	Operating junction temperature	–40		125	°C
T_A	Operating ambient temperature(1)	–40		105	°C

(1) Operating ambient temperature is dependent on system thermal design. Operating junction temperature may not exceed its specified range across ambient temperature conditions.

6.4 Thermal Information(1)

THERMAL METRIC(2)		DLPC120-Q1 ZXS (BGA) 216 PINS	UNIT
Ψ_{JT}	Case-to-junction thermal coefficient	0.28	°C/W
T_{JA}	Junction-to-ambient thermal coefficient	26.32	°C/W

(1) TI recommends customers refer to JEDEC Standard J-STD-020D for information regarding solder reflow profiles. The peak reflow temperature for DLPC120-Q1 is 260°C.
(2) For more information about traditional and new thermal metrics, see the *Semiconductor and IC Package Thermal Metrics* application report, SPRA953.

散热方案：

用超薄热管+ 高密度 焊接翅片。