

Correlation Between Junction Temperature and Surface Thermal Image of the InGaN LED Package

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ABSTRACT

Light-emitting diodes have a small size, long life, low power, fast response characteristics. Thermal management of power LEDs is essential for various advanced applications, such as solid-state lighting and backlight source of LCD. Power LEDs by high current drive. So how to improve under relatively high-power light emitting diodes of the cooling mechanism is an essential. Demonstrated a measurement scheme for characterization of thermal resistance in InGaN-based power LEDs, in which the junction temperature of LEDs is obtained by utilizing the forward voltage method, while the surface temperature of heat sinks is determined by a thermal imager. The validity of the forward voltage method for deriving the junction temperature of LEDs was verified first. Then, the obtained thermal resistance from this scheme was compared with those from other approaches.

Keywords : thermal image, thermal resistance, junction temperature, LEDs

Table of Contents

授權書	iii	中文摘要	iv	ABSTRACT	v	誌謝	
.....	vi	目錄	viii	圖目錄	x	表目錄	
.....	xi	第一章 緒論	1	1.1前言	1	1.2研究目的	
.....	2	第二章 實驗原理	4	2.1發光二極體原理及介紹	4	2.2半導體材料	
.....	10	2.3氮化鎵材料特性	13	2.4溫度對能隙的影響	15	2.4.1溫度對波長	
的影響	16	2.5固晶方式與應用	19	2.5.1銀膠固晶	20	2.5.2共晶固晶	
.....	21	2.5.3覆晶固晶	22	第三章 實驗步驟與方法	23	3.1實驗步驟及系統	
架構	24	3.2順向電壓法	26	3.2.1校正量測	30	3.2.2實際量測	
.....	33	3.3熱影像儀量測	35	3.4熱阻抗	39	第四章 實驗結果	
.....	41	4.1接面溫度量測分析	41	4.2熱影像量測分析	46	4.3熱阻抗分析	
.....	48	第五章 結論	52	參考文獻	54	圖目錄	
.....	3	圖2.1未加偏壓二極體之能帶圖	6	圖2.2外加偏壓二極體之能帶圖	6	圖2.3發光二	
極體發展演進	7	圖2.4各種材料對應的發光波長與能隙.....	9	圖2.5直接能隙與間接能隙半導體能帶的區		別	
.....	11	圖2.6不同LED在不同溫度下波長的偏移	17	圖2.7銀膠固晶 (a)俯視圖 (b)截面圖	20	圖2.8共晶固晶	
截面圖	21	圖2.9覆晶固晶截面圖	22	圖3.1系統架構示意圖	25	圖3.2順向電	
壓、接面溫度和脈衝工作週期關係圖	31	圖3.3注入直流電流切換時，其熱轉換特性	32	圖3.4綠光發光二極體 I-V特		性與接面溫度的關係	
.....	34	圖3.5熱影像儀 TV-200EX	37	圖3.6操作中發光二極體的熱影像	37	圖3.7發光二	
極體熱阻模擬示意圖	40	圖4.1發光二極體實際樣本照片	42	圖4.2發光二極體封裝規格	
.....	42	圖4.3綠光發光二極體的實際量測結果.....	43	圖4.4白光發光二極體的實際量測結果.....	43	圖4.5	
綠光發光二極體的校正量測結果.....	44	圖4.6白光發光二極體的校正量測結果.....	44	圖4.7綠光發光二極體接面溫		度量測結果	
.....	45	圖4.8白光發光二極體接面溫度量測結果	45	圖4.9量測熱影像時的LED樣本，後方為黑體膠帶	
.....	47	圖4.10實際量測熱影像的結果	47	圖4.11發光二極體光輸出功率比較	50	圖4.12綠光發	
熱阻與熱能關係圖	51	圖4.13白光發光二極體熱阻與熱能關係圖	51	表目錄		表2.1氮化合物基本參數比較	
.....	11	表2.2半導體材料特性表	12	表2.3瓦西尼方程式參數。	16	表2.4固晶種類及方	
式	19	表4.1接面溫度和熱影像的溫度差	48	表4.2發光二極體接面溫度與熱影像的溫度差與熱阻	
.....	49						

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