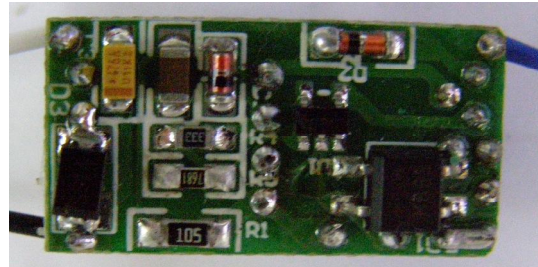
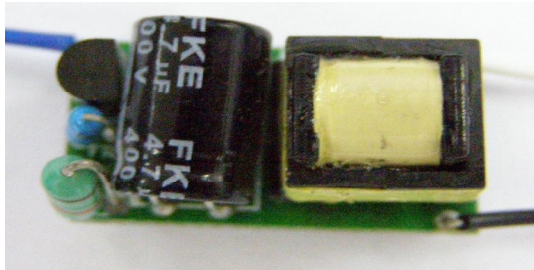


High Efficiency, Low Cost LED Lighting Application

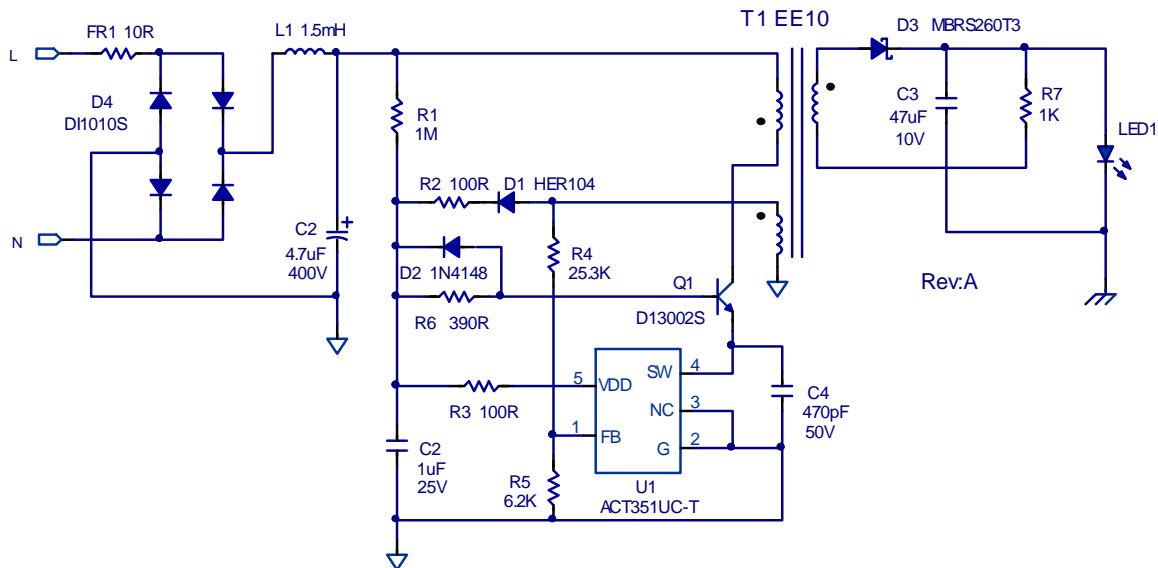
Aug 2008

ACT351 3V~4V/350mA

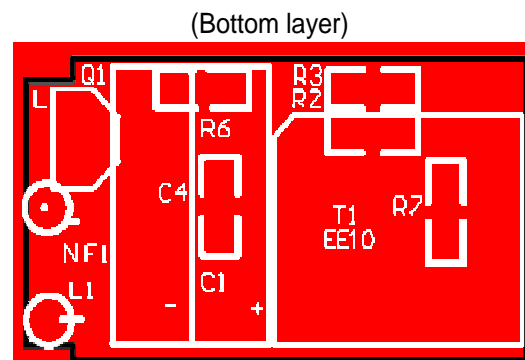
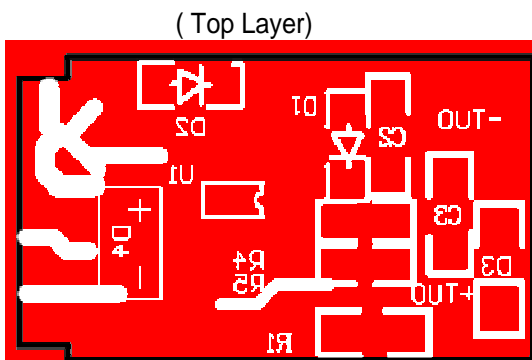
1. Demo Board Photo



2. Schematics



3. PCB Layout

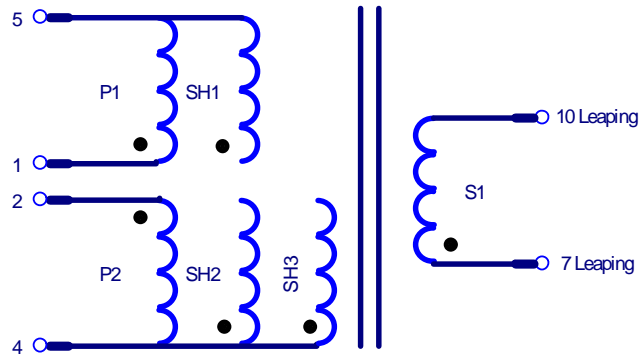


4. Bill OF Materials

Item	Ref.	Description	QTY	Manuf.
1	C1	Capacitor, Electrolytic, 4.7uF/400V, 8x12mm	1	KSC
2	C2	Capacitor, Ceramic,1uF/25V, 1206,SMD	1	POE
3	C4	Capacitor, Ceramic, 470pF/50V, 0805,SMD	1	POE
4	C3	Capacitor, Tantalum, 47uF/10V, A case	1	AVX
5	D1	Diode, Ultra Fast, HER104, 300V/1.0A ,DO-41	1	Good-Ark
6	D2	Diode,Switching,75V/150mA 1N4148 Milimelf,SMD	1	Good-Ark
7	D3	Diode, schottky, 100V/2A, S210, SMB	1	PANJIT
8	D4	Bridge Rectifier,1000V/1A, DI1010S, SDIP	1	PANJIT
9	FR1	Fusible Resistor, 1W, 10 ohm, 5%, DIP	1	TY-OHM
10	L1	Axial Inductor, 1.5mH, 0410,Dip	1	
11	PCB1	PCB,L*W*T=25.4x14x1.0mm, FR-4 Rev:A	1	Jing tong
12	Q1	Transistor, NPN, 600V, 1.5A, D13002S, TO-92	1	Hua Wei
13	R1	Meter Film Resistor, 1M ohm, 1206, 5%	1	TY-OHM
14	R2,3	Meter Film Resistor, 100 ohm, 0805, 5%	2	TY-OHM
15	R4	Meter Film Resistor, 25.3K ohm, 0805, 1%	1	TY-OHM
16	R5	Meter Film Resistor, 6.2K ohm, 0805, 1%	1	TY-OHM
17	R6	Meter Film Resistor, 390 ohm, 0805, 5%	1	TY-OHM
18	R7	Meter Film Resistor, 1K ohm, 0805, 5%	1	TY-OHM
19	T1	Transformer, Lp=1.7mH, EE-10	1	
20	U1	IC, ACT351UC-T, SOT23-5	1	Active

5. Transformer Specification

5.1 Schematics



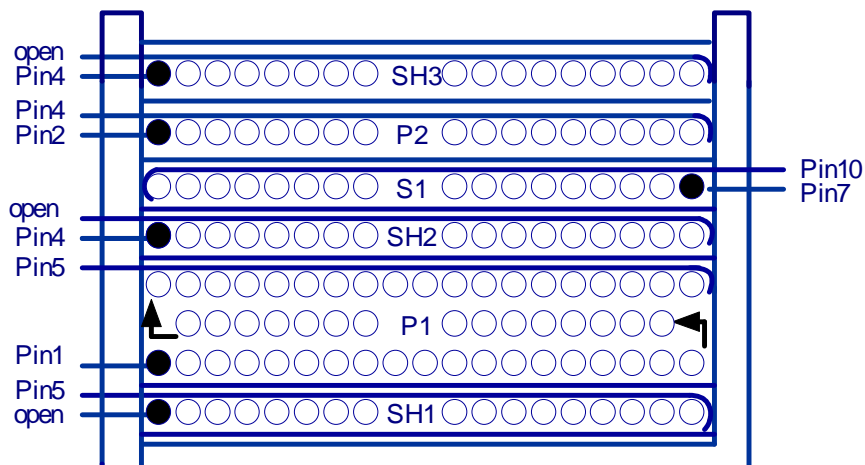
Build-up Table

Winding	Terminal		Turns	Wire			Insulation	
	Start	Finish		Type	Size*QTY	Layer	Thick/Wide	Layer
SH1	open	5	10	2UEW	0.15Φ*4	1	25u/8.5mm	2
P1	1	5	130	2UEW	0.1Φ*1	3	25u/8.5mm	2
SH2	4	open	10	2UEW	0.15Φ*4	1	25u/8.5mm	2
S1	7(Leaping)	10(Leaping)	10	2UEW	0.3Φ*1	1	25u/8.5mm	2
P2	2	4	32	2UEW	0.15Φ*1	1	25u/8.5mm	3
SH3	4	open	10	2UEW	0.15Φ*4	1	25u/8.5mm	2

■ Note: P1 & P2 are primary and S1 is secondary (Bobbin EE-10,Vartical)

■

5.2 Build-up Diagram



5.3 Electrical Specifications

Item	Description	Condition	Limits
1	Electrical Strength	50Hz, 1 minute, from primary and secondary	3000 Vac
2	P1 Inductance	Inductance between pins 1 and 5 at 1Vac & 1kHz	1.7mH ± 7%
3	P1Leakage Inductance	Inductance between pins 1 and 5 with pins 2-4 and 7-10 shorted	75μH

6. Test Report

6.1. Efficiency

VIN (V _{AC})	1LED	PCS
110	67.2	%
220	68.1	%

6.2. Current Limit and Constant Current

Condition	1LED
85	353
110	360
220	352
264	357

6.3. Short Circuit Protection and Release

Protection	85 V _{AC}	110 V _{AC}	220V _{AC}	264 V _{AC}
Pin (W)	0.01	0.12	0.21	0.28

7. EMC Test

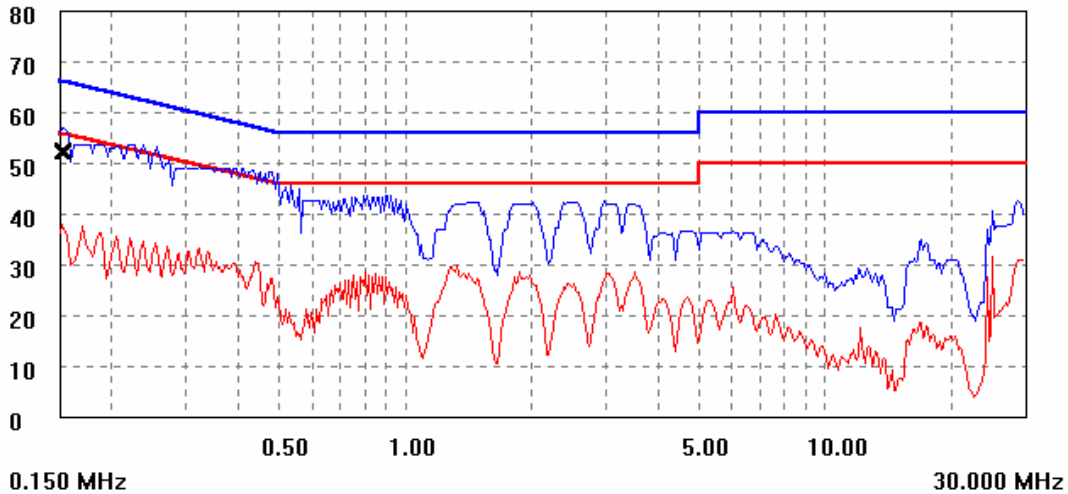
7.1 Conducted EMI

EMI TEST REPORT

Organization: ACTIVE-SEMI	Operator: L	EUT: 3.4V 0.4A	parameter
Place:	Time: 2007/7/9/14:56		
Detector: PK+AV	Test-time(ms): 30		
Limit: GB9254	Transductor: 10		
Remark: ACT35A SOT23-5 .35V 0.4A LED L			

Start(MHz)	End(MHz)	Step(MHz)	freq, step
0.150	0.500	0.002	
0.500	2.000	0.005	
2.000	10.000	0.010	
10.000	30.000	0.025	

dBuV scan result



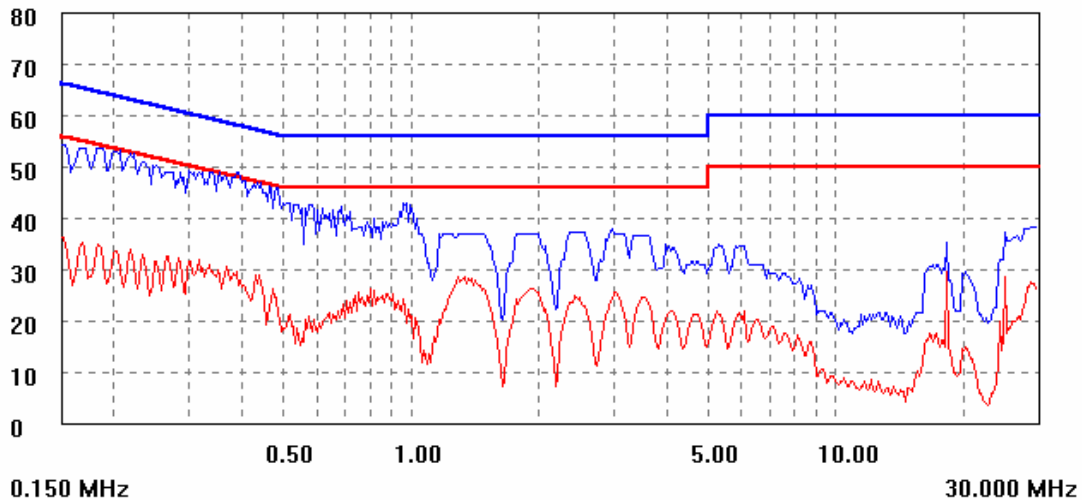
[QP]	freq(MHz)	lev(dBuV)	Lim(dBuV)	△(lev-Lim)	final test
	0.153	52.2	65.9	-13.7	

EMI TEST REPORT

Organization: ACTIVE-SEMI	Operator: L	EUT: 3.4V 0.4A	parameter
Place:	Time: 2007/7/9/14:59		
Detector: PK+AV	Test-time(ms): 30		
Limit: GB9254	Transductor: 10		
Remark: ACT35A SOT23-5 .35V 0.4A LED N			

Start(MHz)	End(MHz)	Step(MHz)	freq, step
0.150	0.500	0.002	
0.500	2.000	0.005	
2.000	10.000	0.010	
10.000	30.000	0.025	

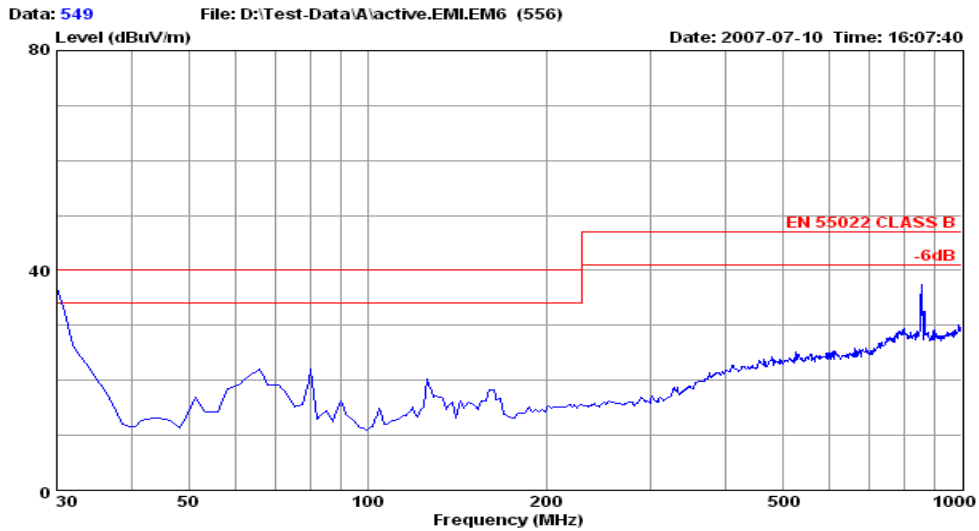
dBuV scan result



7.2 Radiation EMI



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 audixaci@audix.com



Site : Chamber 3
 Condition : EN 55022 CLASS B 3m VERTICAL
 Project No. :
 Applicant :
 EUT : Adapter
 M/N : ACT35A
 S/N : LED*1
 Power Supply : 230V/50Hz
 Ambient : 22°C 60%RH
 Test Mode : 230V/50Hz
 Test Engineer : Leo
 Memo : YUAN

	Freq	Level	Over	Limit	Read	Factor	CableAntenna	Loss Factor
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB/m
1	30.00	32.43	-7.57	40.00	13.50	18.93	0.91	18.02

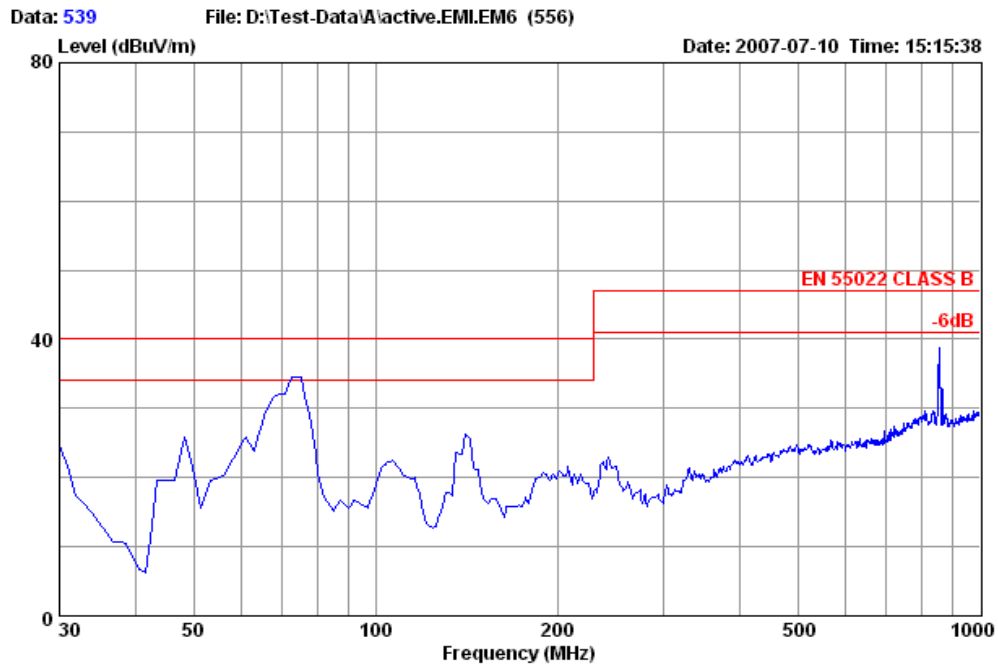
Low Cost LED Lighting Application Solution

Aug 2008

ACT351 3V~4V/350m



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Condition : EN 55022 CLASS B 3m HORIZONTAL
Project No. :
Applicant :
EUT : Adapter
M/N : ACT35A
S/N : LED*1
Power Supply : 230V/50Hz
Ambient : 22°C 60%RH
Test Mode : 230V/50Hz
Test Engineer : Leo
Memo : FANG