

LAPT

Application : Audio and General Purpose

■ **Absolute maximum ratings** (Ta=25°C)

($T_a=25^{\circ}\text{C}$)

Symbol	Conditions	2SA1386	2SA1386A	Unit
I _{CBO}		-100max	-100max	μA
	V _{CB} =	-160	-180	V
I _{EBO}	V _{EB} =-5V	-100max		μA
V _{(BR)CEO}	I _C =-25mA	-160min	-180min	V
h _{FE}	V _{CE} =-4V, I _C =-5A	50min*		
V _{CE(sat)}	I _C =-5A, I _B =-0.5A	-2.0max		V
f _T	V _{CE} =-12V, I _E =2A	40typ		MHz
C _{OB}	V _{CB} =-10V, f=1MHz	500typ		pF

■ Typical Switching Characteristics (Common Emitter)

Technical drawing of a 1/2" NPT x 1/2" NPT Tee. The drawing includes a front view, a side view, and a cross-section. The front view shows a tee with a central bore of 1/2 inch (12.7 mm) and a flange with a diameter of 1.56 inches (39.6 mm). The side view shows a wall thickness of 0.065 inches (1.65 mm) and a total height of 1.4 inches (35.4 mm). The cross-section shows a bore of 1/2 inch (12.7 mm) and a wall thickness of 0.065 inches (1.65 mm). Dimensions are given in inches and millimeters.

The graph plots Collector Current I_c (A) on the y-axis (0 to -15) against Base-Emitter Voltage V_{be} (V) on the x-axis (0 to -2). The curves are for $V_{ce} = -4V$ and show that I_c increases with V_{be} and is higher at higher temperatures.

V_{be} (V)	I_c (A) at 125°C	I_c (A) at 25°C	I_c (A) at -30°C
-0.8	-1	-0.5	-0.2
-1.0	-3	-1.5	-0.8
-1.2	-7	-4	-2
-1.4	-13	-8	-4

Graph showing DC Current Gain (h_{FE}) versus Collector Current (I_C) for the 2N3866 JFET at $V_{CE} = -4V$. The curves are plotted for three temperatures: $125^{\circ}C$, $25^{\circ}C$, and $-30^{\circ}C$. The y-axis is logarithmic, ranging from 20 to 200. The x-axis is logarithmic, ranging from -0.02 to -15 A. The curves show that h_{FE} is highest at $125^{\circ}C$ and lowest at $-30^{\circ}C$, and it decreases significantly as I_C increases beyond -1 A.

A graph showing the transient thermal resistance $\theta_{ja}(^{\circ}\text{C/W})$ versus time $t(\text{ms})$ for a 15W LED. The y-axis is logarithmic, ranging from 0.1 to 3. The x-axis is logarithmic, ranging from 1 to 2000 ms. The curve starts at approximately 0.2 $^{\circ}\text{C/W}$ at 1 ms and increases to about 2.5 $^{\circ}\text{C/W}$ at 2000 ms.

The graph shows the relationship between the emitter current I_E and the cut-off frequency f_T for a 2N4350 PNP transistor. The x-axis is logarithmic, ranging from 0.02 A to 10 A. The y-axis is linear, ranging from 0 to 60 MHz. Three curves are plotted, representing different performance levels. The 'Typ' curve is the middle one, peaking at approximately 41 MHz when I_E is about 2 A.

Emitter Current I_E (A)	f_T (MHz) - Top Curve	f_T (MHz) - Typ	f_T (MHz) - Bottom Curve
0.02	10	8	5
0.1	25	18	12
1	50	38	28
2	52	41	31
10	45	38	29

Without Heatsink
Natural Cooling

1.2SA1386
2.2SA1386A

10ms

DC

Collector Current I_c (A)

Collector-Emitter Voltage V_{ce} (V)

The graph illustrates the relationship between ambient temperature and maximum power dissipation for a MOSFET. The y-axis represents Maximum Power Dissipation P_c in Watts (W), ranging from 0 to 130. The x-axis represents Ambient Temperature T_a in degrees Celsius ($^{\circ}\text{C}$), ranging from 0 to 150. Two scenarios are plotted:

- Without Heatsink:** This line shows a constant maximum power dissipation of approximately 3.5 W across the entire temperature range from 0 $^{\circ}\text{C}$ to 150 $^{\circ}\text{C}$.
- With Infinite heatsink:** This line shows a maximum power dissipation that starts at 130 W at 25 $^{\circ}\text{C}$ and decreases linearly to 0 W at 150 $^{\circ}\text{C}$.