NEC
ELECTRON DEVICE

SILICON TRANSISTORS
2SC1505,2SC1506,2SC1507

NPN SILICON TRIPLE DIFFUSED TRANSISTORS
COLOR TV CHROMA AND SOUND OUTPUT AMPLIFIERS

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DESCRIPTION

The 2SC1505, 2SC1506 and 2SC1507 are high voltage triple diffused silicon transistors. These transistors are designed for use in line-operated color TV chroma output circuits and sound output circuits.

Three types of different lead configuration are prepared for designer's convenience.

FEATURES

- Suitable for chroma output circuits and sound output circuits (P_O=1.5W) in line-operated color TV receivers.
- High voltage, high f_T and low C_{ob}.
- Three types of different lead configuration available.
  - 2SC1505 . . . . . Standard type
  - 2SC1506 . . . . . TO-66 replacement
  - 2SC1507 . . . . . Upright mounting

ABSOLUTE MAXIMUM RATINGS (Ta=25℃)

Collector to Base Voltage	V_{CBO}	300	V
Collector to Emitter Voltage	V_{CEO}	300	V
Emitter to Base Voltage	V_{EBO}	7.0	V
Collector Current	I_C	200	mA
Total Power Dissipation	P_T(Tc=25°C)	15	W
Total Power Dissipation	P_T(Ta=25°C)	1.2	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	−55 to +150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

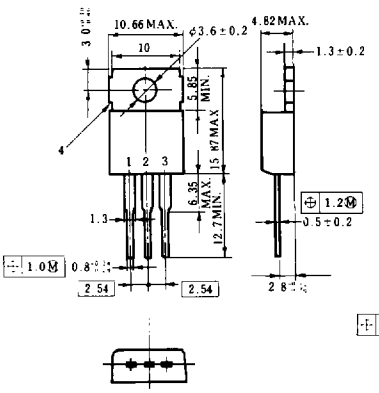
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			100	nA	V_{CB}=200V, I_E=0
Emitter Cutoff Current	I_{EBO}			100	nA	V_{EB}=5.0V, I_C=0
DC Current Gain	h_{FE}	40	80	200		V_{CE}=10V, I_C=10mA *
Collector Saturation Voltage	$V_{CE(sat)}$			2.0	V	I_C=50mA, I_B=5.0mA *
Gain Bandwidth Product	f_T	50	80		MHz	V_{CE}=30V, I_E=−10mA
Collector to Base Capacitance	C_{ob}			4.5	pF	V_{CB}=50V, I_E=0, f=1.0MHz

*Pulse test PW ≦ 350μs, duty cycle ≦ 2.0%

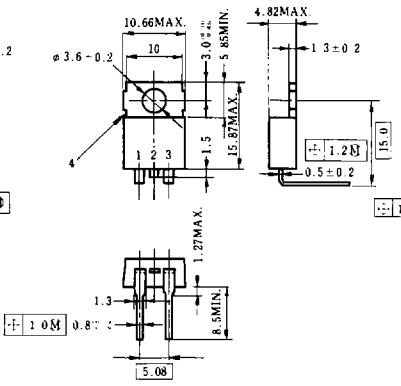
h_{FE} classification M:40−80 L:60−120 K:100−200

PACKAGE DIMENSIONS (Unit: mm)

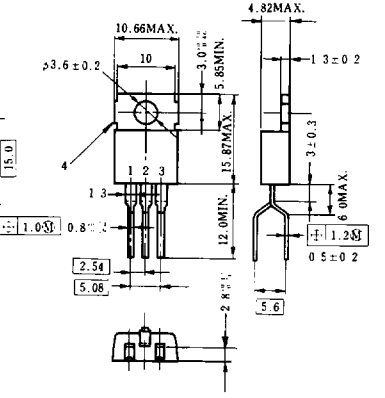
2SC1505



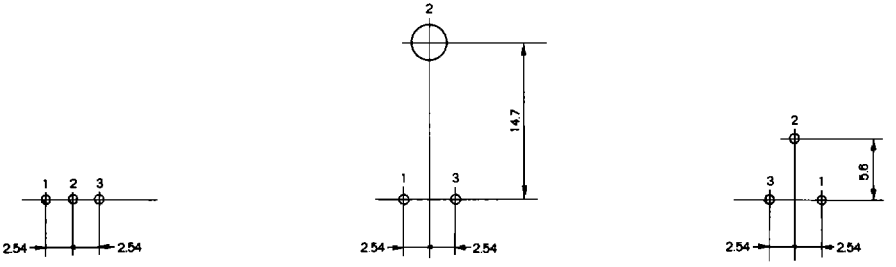
2SC1506



2SC1507



MOUNTING HOLE LAYOUT DIMENSIONS



LEAD CONNECTION

1. Base	EIAJ : SC-46	
2. Collector(Fin)	JEDEC: TO-220AB	
3. Emitter	IEC : —	
4. Fin		

As the clearance between collector and Base, Emitter is narrow, care should be taken at high voltage use.

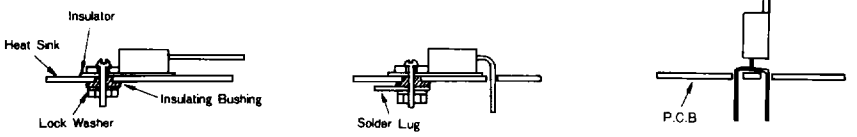
1. Base	EIAJ : SC-45	
2. —	JEDEC: TO-220AA	
3. Emitter	IEC : —	
4. Collector(Fin)		

As the collector lead is cut, solder lug is used instead of it.

1. Base	EIAJ : —	
2. Collector(Fin)	JEDEC : —	
3. Emitter	IEC : —	
4. Fin		

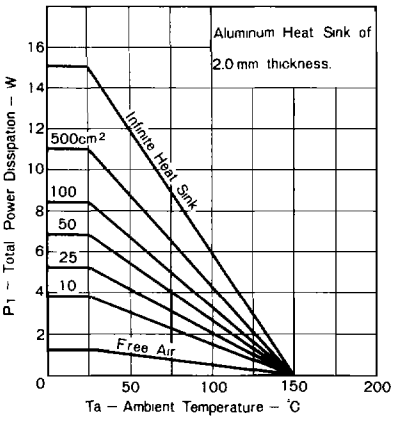
Convenient in case of free-air use.

SUGGESTED MOUNTING METHODS

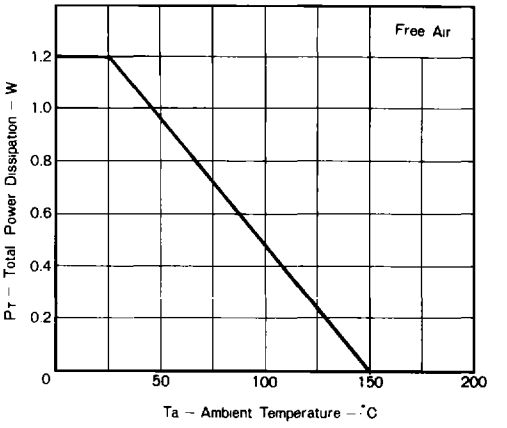


POWER-TEMPERATURE DERATING CURVES

TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE

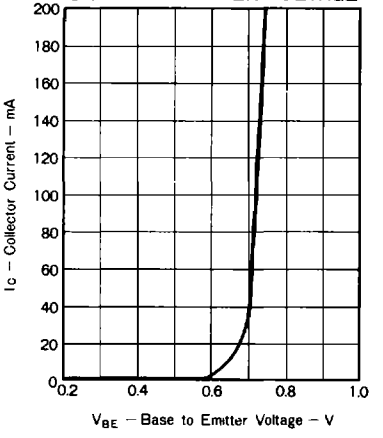


TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE

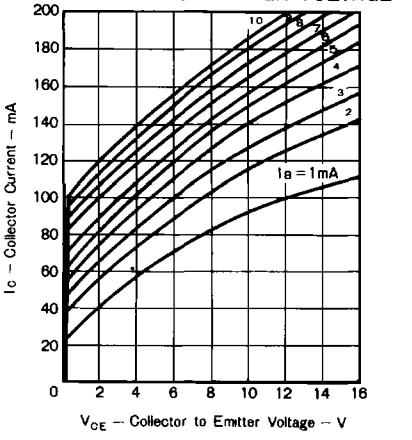


TYPICAL CHARACTERISTICS (Ta=25°C)

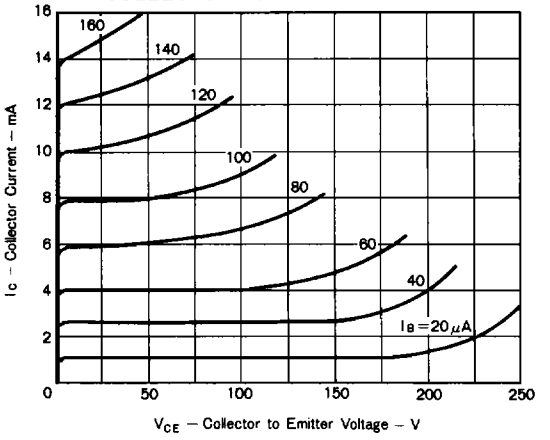
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



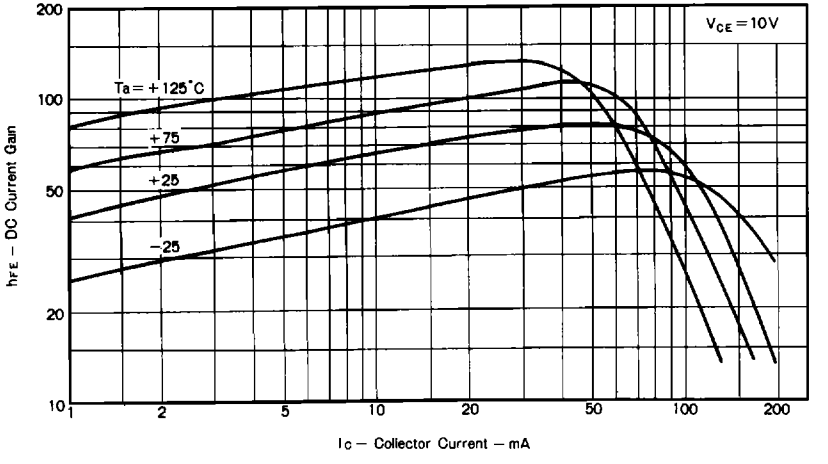
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



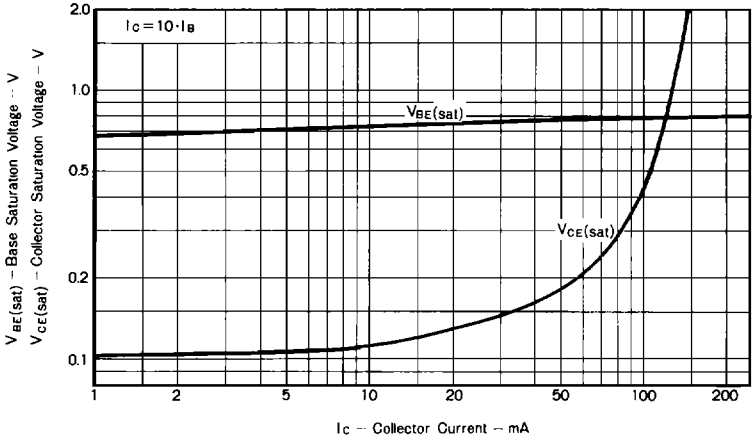
COLLECTOR CURRENT vs.
COLLECTOR TO EMITTER VOLTAGE



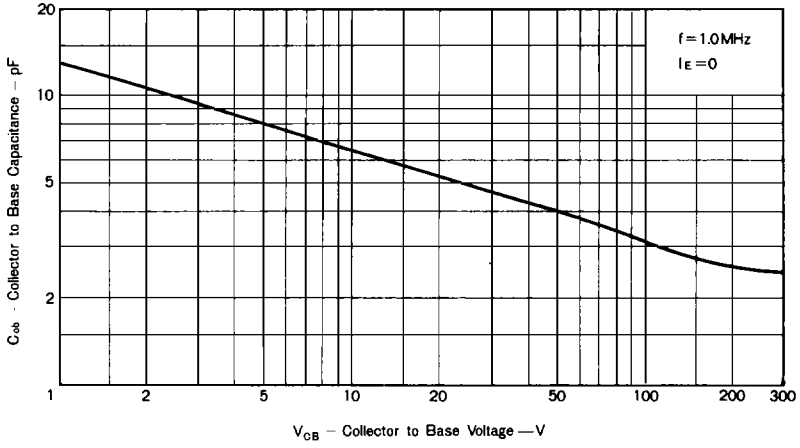
DC CURRENT GAIN vs.
COLLECTOR CURRENT



BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



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GAIN BANDWIDTH PRODUCT vs.
EMITTER CURRENT