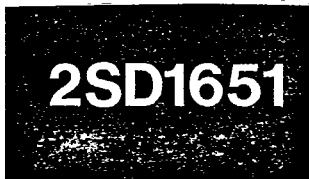


T-83-11



2039

NPN Triple Diffused Planar Silicon Transistor

Color TV Horizontal Deflection Output Applications(with Damper Diode)

©1749B

Applications

- High-voltage, power switching

Features

- Fast speed ($t_{max}=0.4\mu s$).
- High reliability (Adoption of HVP process).
- High breakdown voltage ($V_{CBO}=1500V$).
- Micaless package facilitating mounting operation.

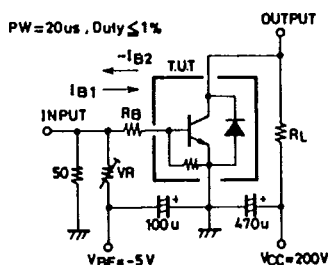
Absolute Maximum Ratings at $T_a=25^\circ C$

| Parameter | Symbol | Value | Unit |
|------------------------------|-----------|-------------|------------|
| Collector to Base Voltage | V_{CBO} | 1500 | V |
| Collector to Emitter Voltage | V_{CEO} | 800 | V |
| Emitter to Base Voltage | V_{EBO} | 6 | V |
| Collector Current | I_C | 5 | A |
| Peak Collector Current | i_{cp} | 16 | A |
| Collector Dissipation | P_C | 60 | W |
| Junction Temperature | T_J | 150 | $^\circ C$ |
| Storage Temperature | T_{stg} | -55 to +150 | $^\circ C$ |

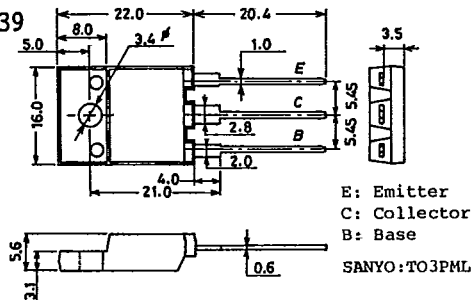
Electrical Characteristics at $T_a=25^\circ C$

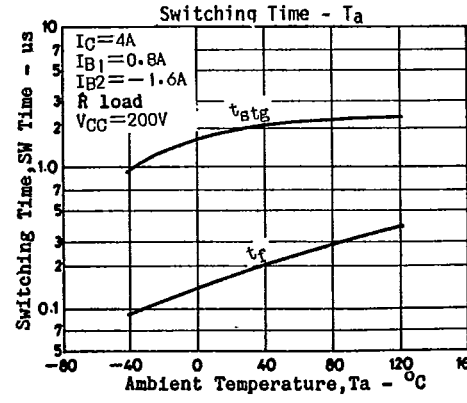
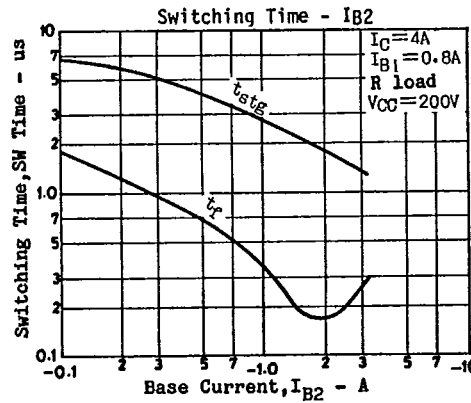
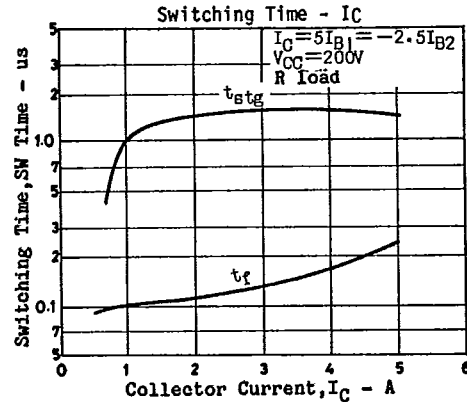
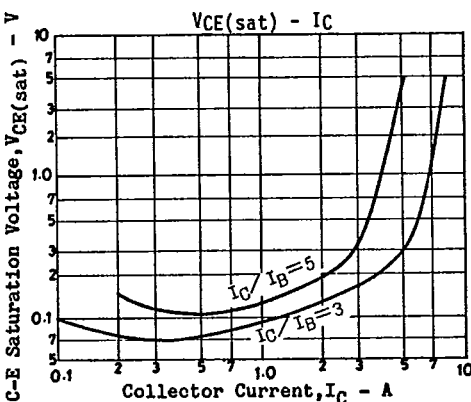
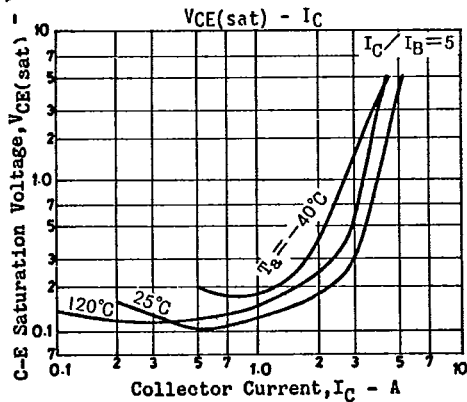
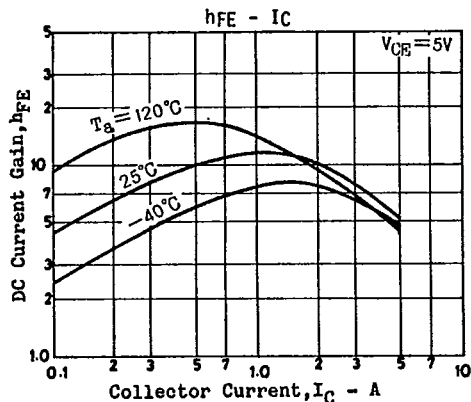
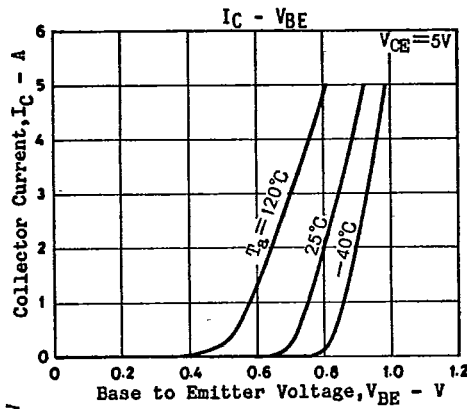
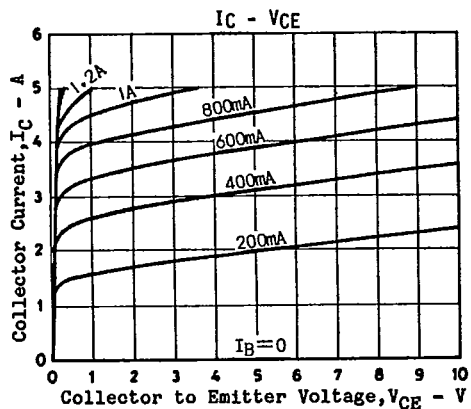
| Parameter | Symbol | Test Conditions | min | typ | max | Unit |
|---|---------------|--|------|-----|-----|---------|
| Collector Cutoff Current | I_{CBO} | $V_{CB}=800V, I_E=0$ | | | 10 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=4V, I_C=0$ | 40 | | 130 | mA |
| DC Current Gain | h_{FE} | $V_{CE}=5V, I_C=1A$ | 8 | | | |
| Gain Bandwidth Product | f_T | $V_{CE}=10V, I_C=1A$ | | 3 | | MHz |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=4A, I_B=0.8A$ | | | 5 | V |
| Base to Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=4A, I_B=0.8A$ | | | 1.5 | V |
| Collector to Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=5mA, I_E=0$ | 1500 | | | V |
| Collector to Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=100mA, R_{BE}=\infty$ | 800 | | | V |
| Emitter to Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=200mA, I_C=0$ | 7 | | | V |
| Diode Forward Voltage | V_F | $I_{EC}=5A$ | | | 2 | V |
| Fall Time | t_f | $I_C=4A, I_{B1}=0.8A, I_{B2}=-1.6A, V_{CC}=200V, R_L=50\Omega$ | | | 0.4 | μs |

Switching Time Test Circuit



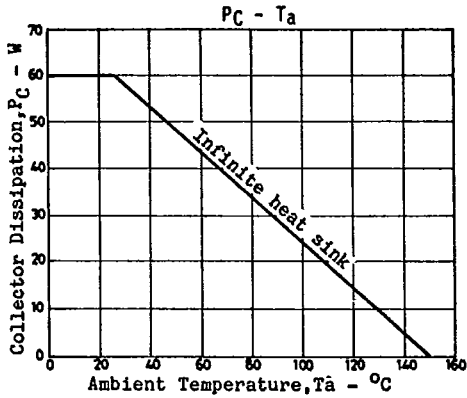
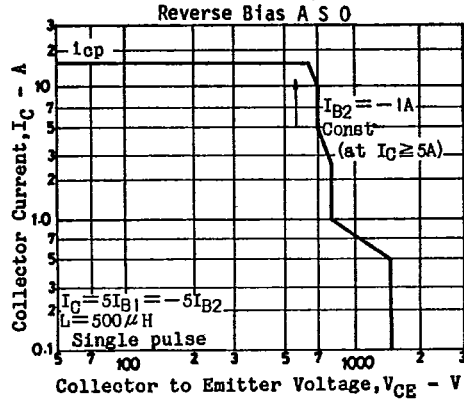
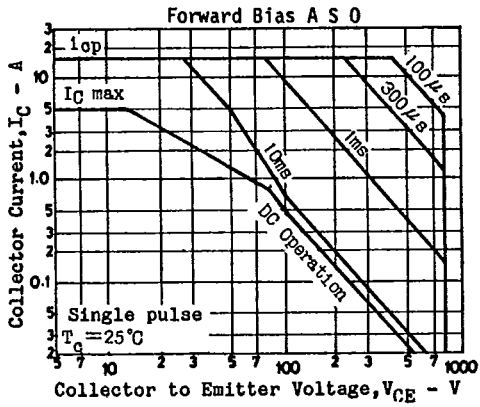
Case Outline 2039 (unit:mm)



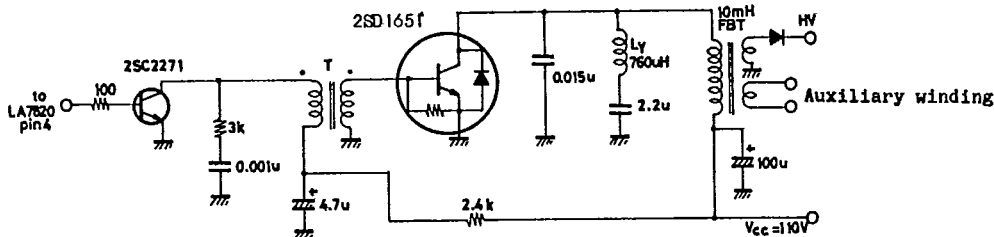


2SD1651

T-33-11



Sample Application Circuit



T : C5163 (Tokyo Parts Kogyo)
 NP=1025T
 NS=48 3/4T
 Core DR8X11

$I_{B1} = 0.8\text{A}$
 $-I_{B2} = 0.9 \sim 1.6\text{A}$
 $I_C = 4\text{A}$

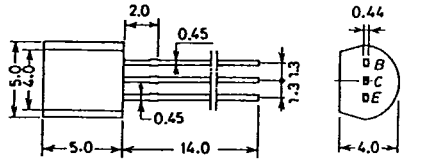
T-91-20

CASE OUTLINES AND ATTACHMENTS

- All of Sanyo Transistor case outlines are illustrated below.
- All dimensions are in mm, and dimensions which are not followed by min. or max. are represented by typical values.
- No marking is indicated.

Case Outline-[2003A]

unit:mm

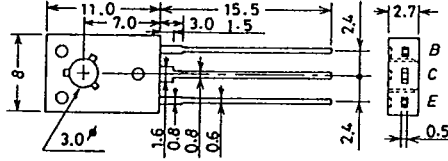


JEDEC: TO-92
EIAJ: SC-43
SANYO: NP

B. Base
C. Collector
E. Emitter

Case Outline-[2009A]

unit:mm

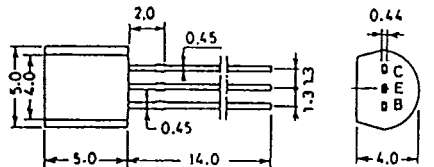


JEDEC: TO-126

B: Base
C: Collector
E: Emitter

Case Outline-[2004A]

unit:mm

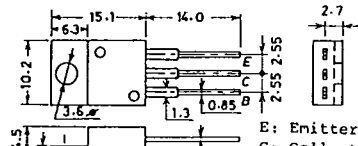


JEDEC: TO-92
EIAJ: SC-43
SANYO: NP

C. Collector
E. Emitter
B. Base

Case Outline-[2010A]

unit:mm

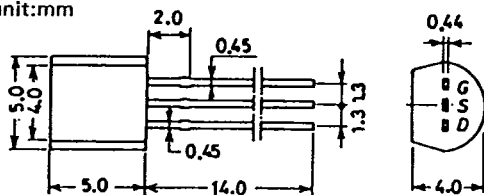


JEDEC: TO-220AB
EIAJ: SC-46

E: Emitter
C: Collector
B: Base

Case Outline-[2005A]

unit:mm

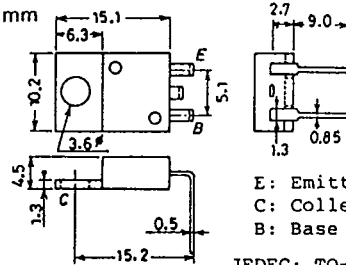


JEDEC: TO-92
EIAJ: SC-43
SANYO: NP

G: Gate
S: Source
D: Drain
B: Base
C: Collector

Case Outline-[2012]

unit:mm

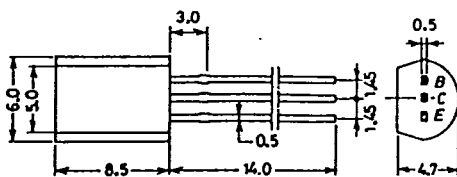


JEDEC: TO-220AA
EIAJ: SC-45

E: Emitter
C: Collector
B: Base

Case Outline-[2006A]

unit:mm

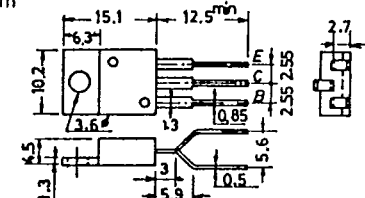


EIAJ: SC-51
SANYO: MP

B: Base
C: Collector
E: Emitter

Case Outline-[2013]

unit:mm



JEDEC TO-220

B: Base
C: Collector
E: Emitter

T-91-20

