Ordering number:ENN5696A

NPN Triple Diffused Planar Silicon Transistor

# 2SC5416LS

## Inverter Lighting Applications

## Features

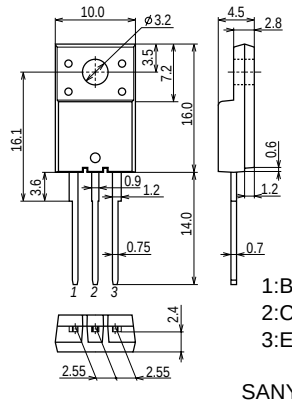
- High breakdown voltage.
- High reliability (Adoption of HVP process).
- Adoption of MBIT process.

## Package Dimensions

unit:mm

2079D

[2SC5416]




SANYO:TO-220FI (LS)

## Specifications

### Absolute Maximum Ratings at Ta = 25˚C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Collector-to-Base Voltage | $V_{CBO}$ | | 1000 | V |
| Collector-to-Emitter Voltage | $V_{CEO}$ | | 450 | V |
| Emitter-to-Base Voltage | $V_{EBO}$ | | 9 | V |
| Collector Current | $I_C$ | | 4 | A |
| Collector Current (pulse) | $I_{CP}$ | | 8 | A |
| Collector Dissipation | $P_C$ | | 2 | W |
| | | Tc=25˚C | 25 | W |
| Junction Temperature | Tj | | 150 | ˚C |
| Storage Temperature | Tstg | | –55 to +150 | ˚C |

### Electrical Characteristics at Ta=25˚C

| Parameter | Symbol | Conditons | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB}$=450V, $I_E$=0 | | | 10 | μA |
| Collector Cutoff Current | $I_{CES}$ | $V_{CE}$=1000V, $R_{BE}$=0 | | | 1.0 | mA |
| Collector Saturation Voltage | $V_{CEO(sus)}$ | $I_C$=100mA, $I_B$=0 | 450 | | | V |
| Emitter Cutoff Current | $I_{EBO}$ | $V_{EB}$=9V, $I_C$=0 | | | 1.0 | mA |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C$=2A, $I_B$=0.4A | | | 1.0 | V |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C$=2A, $I_B$=0.4A | | | 1.5 | V |
| DC Current Gain | $h_{FE}1$ | $V_{CE}$=5V, $I_C$=0.1A | 30 | 40 | 50 | |
| | $h_{FE}2$ | $V_{CE}$=5V, $I_C$=1.5A | 10 | | | |
| Storage Time | $t_{stg}$ | $I_C$=2A, $I_{B1}$=0.4A, $I_{B2}$=–0.8A | | | 2.5 | μs |
| Fall Time | $t_f$ | $I_C$=2A, $I_{B1}$=0.4A, $I_{B2}$=–0.8A | | | 0.15 | μs |

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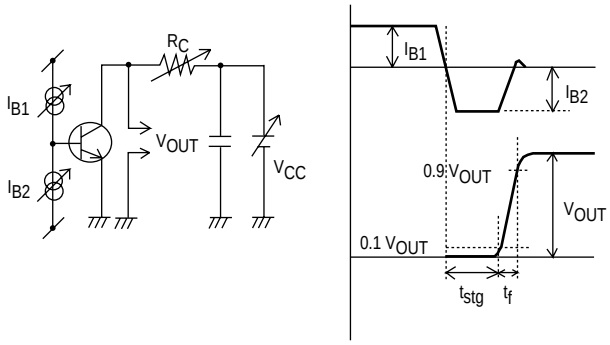
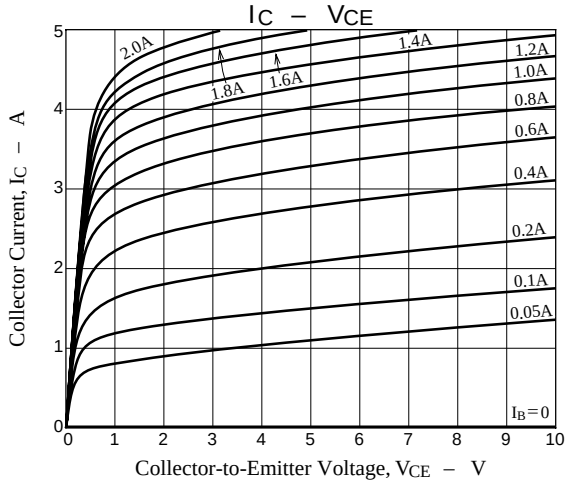
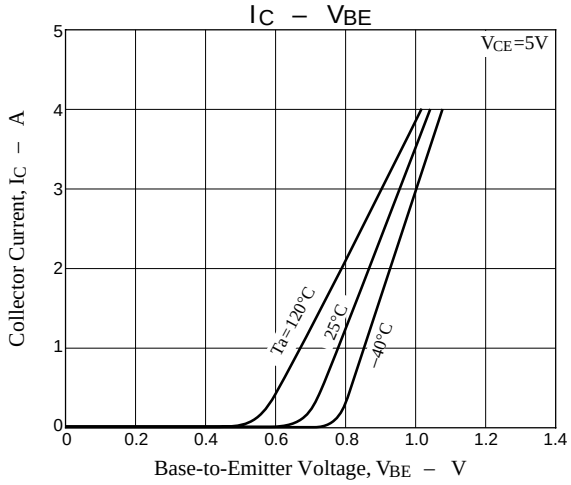
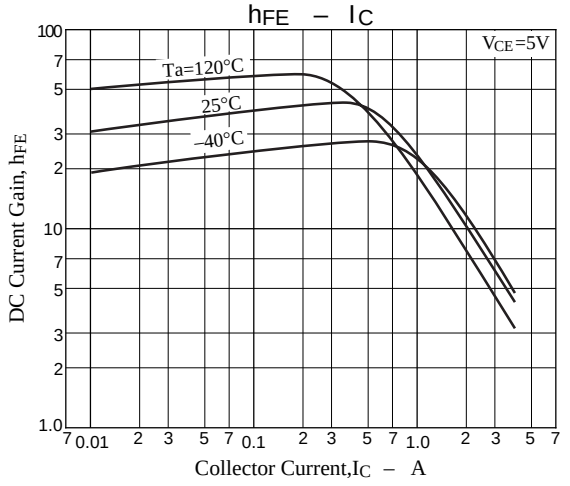
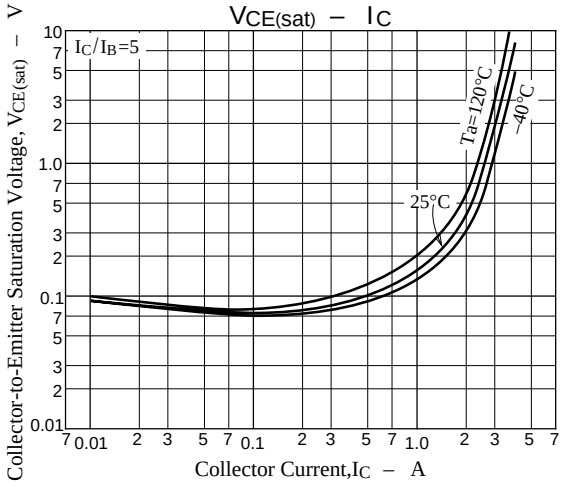
## Switching Time Test Circuit

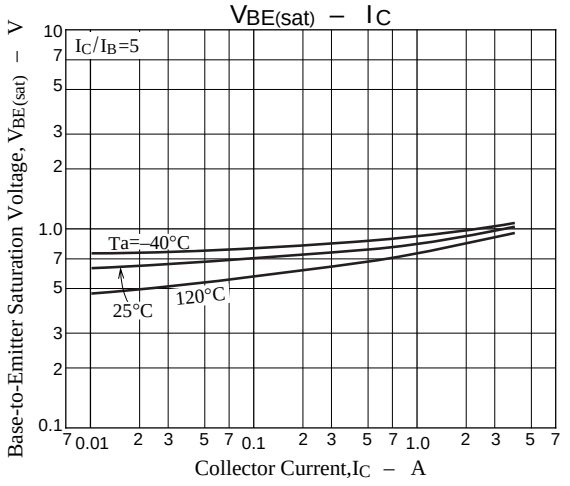


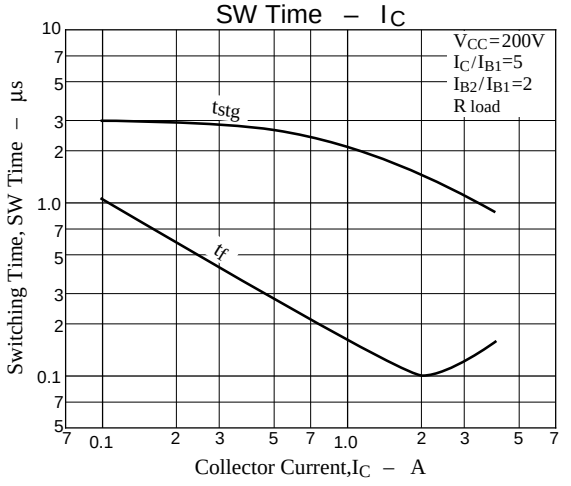



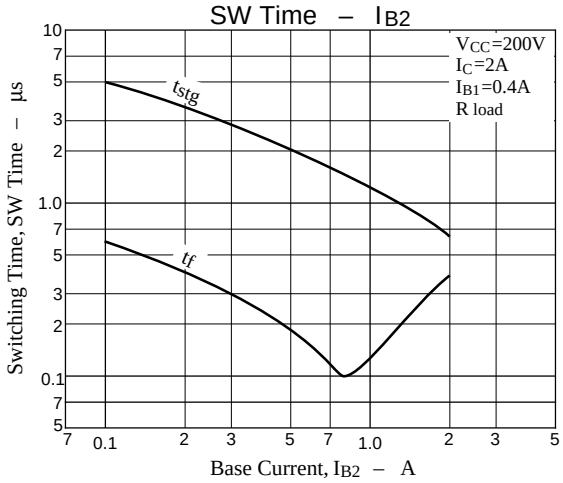



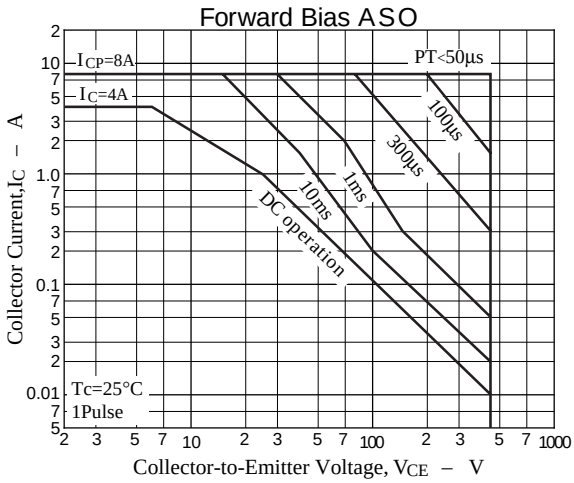



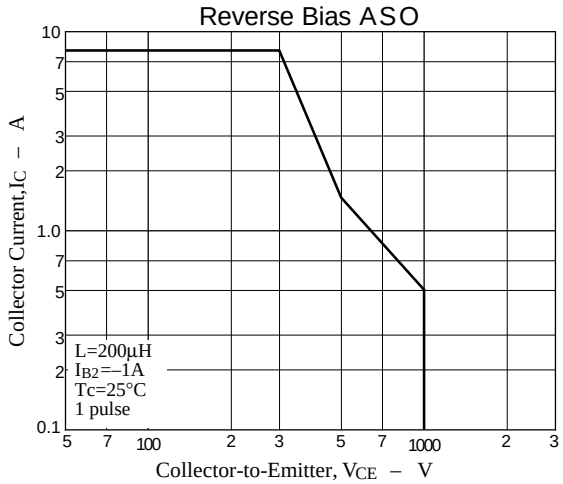



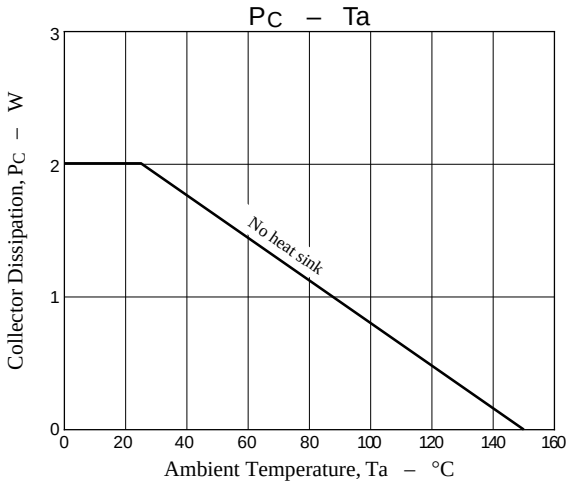



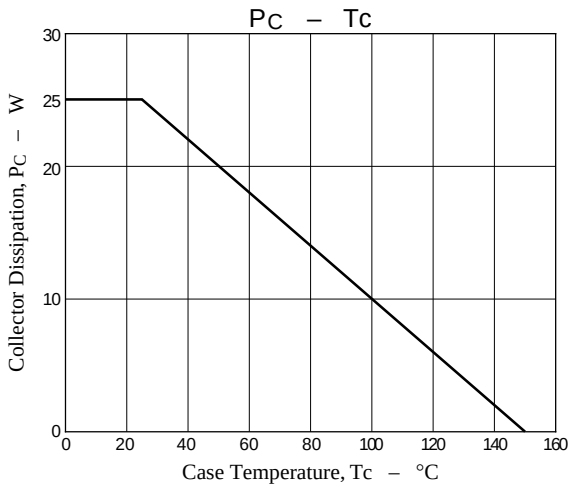




SW Time – IB2
VCC=200V
IC=2A
IB1=0.4A
R load
tstg
tf
Switching Time, SW Time – µs
Base Current, IB2 – A


Forward Bias ASO
ICP=8A
IC=4A
PT<50µs
100µs
300µs
1ms
10ms
DC operation
Tc=25°C
1Pulse
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V


Reverse Bias ASO
L=200µH
IB2=–1A
Tc=25°C
1 pulse
Collector Current, IC – A
Collector-to-Emitter, VCE – V


PC – Ta
No heat sink
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C


PC – Tc
Collector Dissipation, PC – W
Case Temperature, Tc – °C