TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSE TYPE (PCT PROCESS)

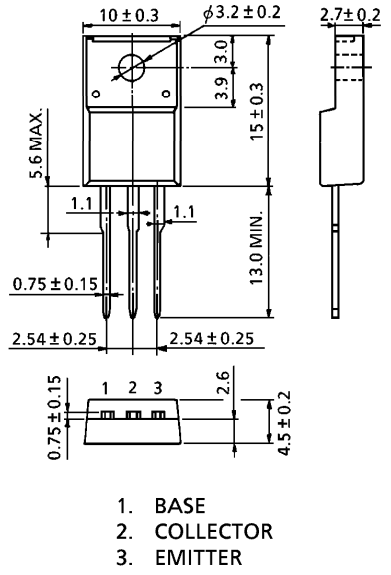
# 2SC4544

HIGH VOLTAGE SWITCHING AND AMPLIFIER APPLICATIONS

COLOR TV HORIZONTAL DRIVER APPLICATIONS

COLOR TV CHROMA OUTPUT APPLICATIONS

Unit in mm




| | |
|---|---|
| JEDEC | — |
| JEITA | SC-67 |
| TOSHIBA | 2-10R1A |

Weight : 1.7g (Typ.)

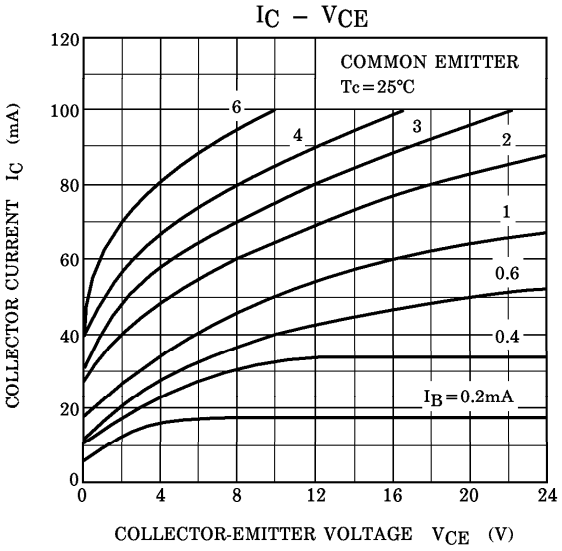
- High Voltage : $V_{(BR)CEO}=300V$
- Small Collector Output Capacitance : $C_{ob}=3.0pF$ (Typ.)
- Collector metal (Fin) is fully covered with mold resin.

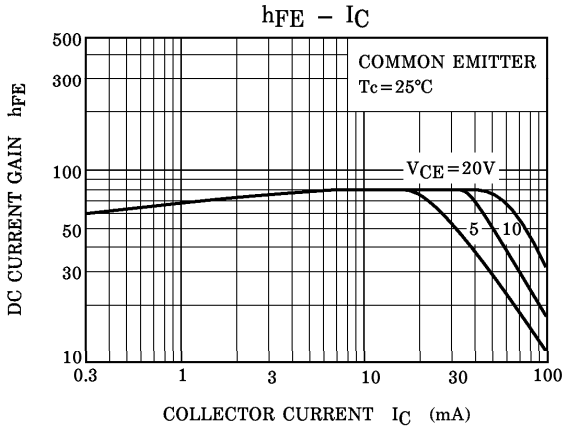
MAXIMUM RATINGS (Tc = 25°C)

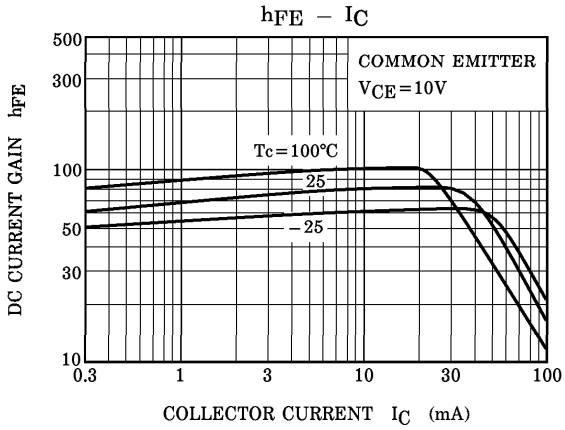
| CHARACTERISTIC | | SYMBOL | RATING | UNIT |
|---|---|---|---|---|
| Collector-Base Voltage | | $V_{CBO}$ | 300 | V |
| Collector-Emitter Voltage | | $V_{CEO}$ | 300 | V |
| Emitter-Base Voltage | | $V_{EBO}$ | 7 | V |
| Collector Current | | $I_C$ | 100 | mA |
| Base Current | | $I_B$ | 50 | mA |
| Collector Power Dissipation | Ta = 25°C | $P_C$ | 2 | W |
| | Tc = 25°C | | 8 | |
| Junction Temperature | | $T_j$ | 150 | °C |
| Storage Temperature Range | | $T_{stg}$ | −55~150 | °C |

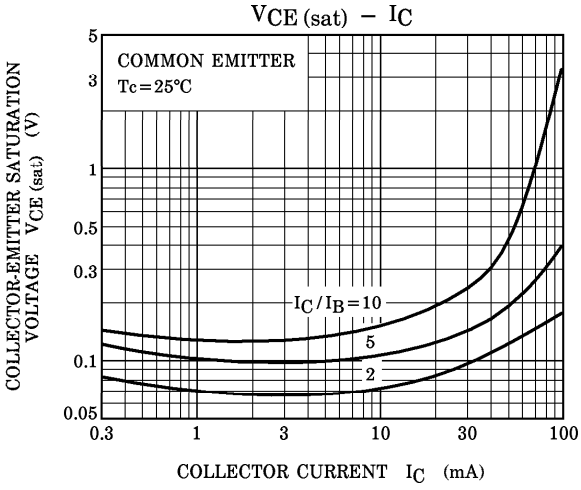
ELECTRICAL CHARACTERISTICS (Tc = 25°C)

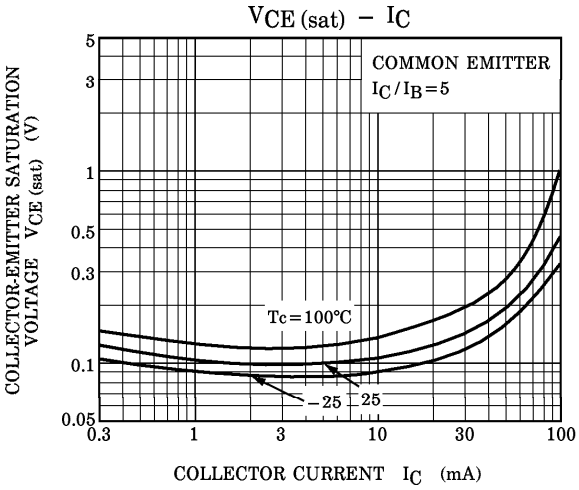
| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Collector Cut-off Current | $I_{CBO}$ | $V_{CB}=240V$, $I_E=0$ | — | — | 1.0 | μA |
| Emitter Cut-off Current | $I_{EBO}$ | $V_{EB}=7V$, $I_C=0$ | — | — | 1.0 | μA |
| DC Current Gain | $h_{FE(1)}$ | $V_{CE}=10V$, $I_C=4mA$ | 20 | — | — | |
| | $h_{FE(2)}$ | $V_{CE}=10V$, $I_C=20mA$ | 30 | — | 200 | |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=10mA$, $I_B=1mA$ | — | — | 1.0 | V |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=10mA$, $I_B=1mA$ | — | — | 1.0 | V |
| Transition Frequency | $f_T$ | $V_{CE}=10V$, $I_C=20mA$ | 50 | 70 | — | MHz |
| Collector Output Capacitance | $C_{ob}$ | $V_{CB}=20V$, $I_E=0$, f=1MHz | — | 3.0 | — | pF |

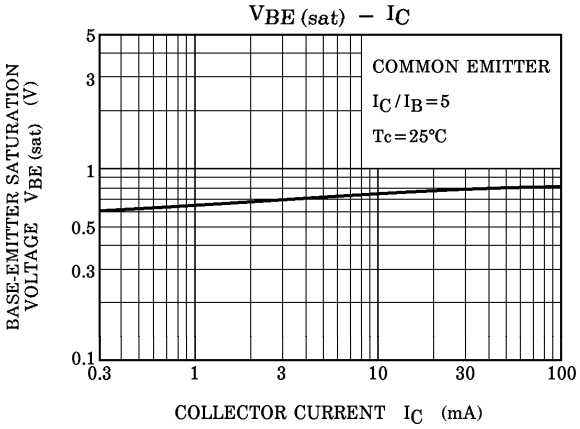

IC – VCE
COMMON EMITTER
Tc=25°C
6
4
3
2
1
0.6
0.4
IB=0.2mA
COLLECTOR CURRENT IC (mA)
COLLECTOR-EMITTER VOLTAGE VCE (V)

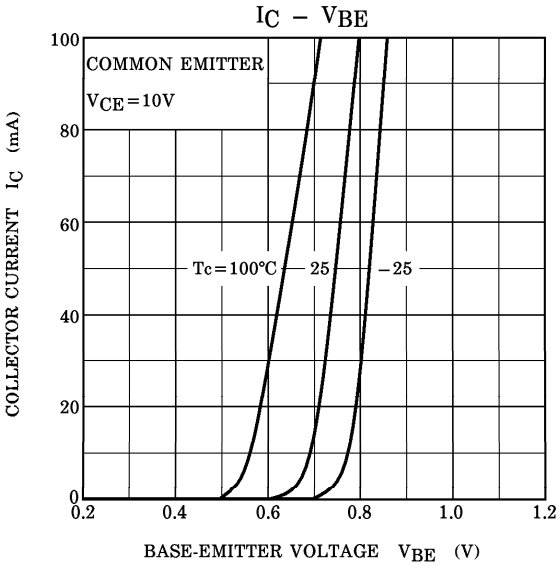

hFE – IC
COMMON EMITTER
Tc=25°C
VCE=20V
5
10
DC CURRENT GAIN hFE
COLLECTOR CURRENT IC (mA)

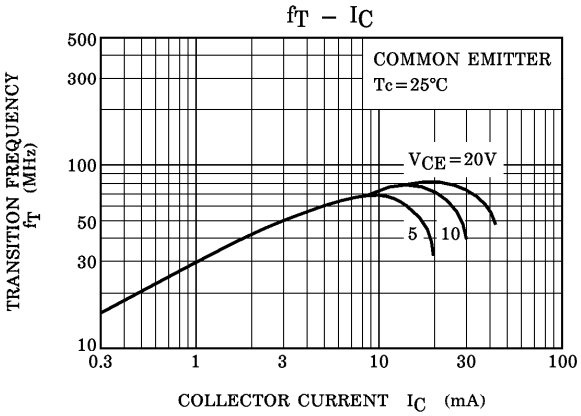

hFE – IC
COMMON EMITTER
VCE=10V
Tc=100°C
25
−25
DC CURRENT GAIN hFE
COLLECTOR CURRENT IC (mA)

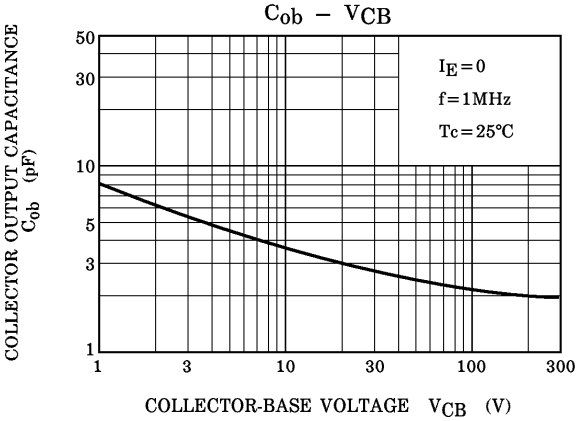

VCE (sat) – IC
COMMON EMITTER
Tc=25°C
IC/IB=10
5
2
COLLECTOR-EMITTER SATURATION VOLTAGE VCE (sat) (V)
COLLECTOR CURRENT IC (mA)

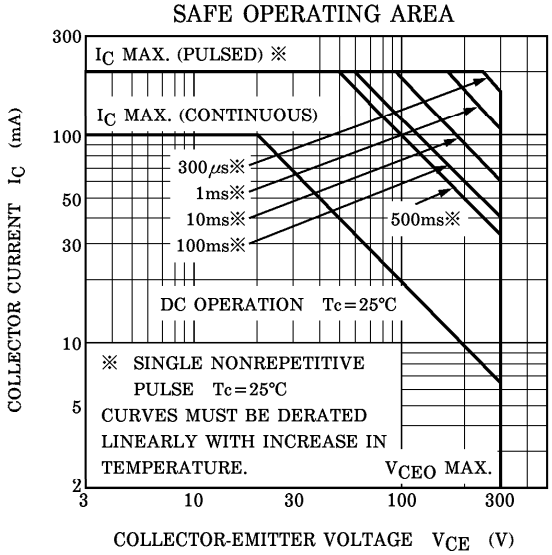

VCE (sat) – IC
COMMON EMITTER
IC/IB=5
Tc=100°C
−25
25
COLLECTOR-EMITTER SATURATION VOLTAGE VCE (sat) (V)
COLLECTOR CURRENT IC (mA)

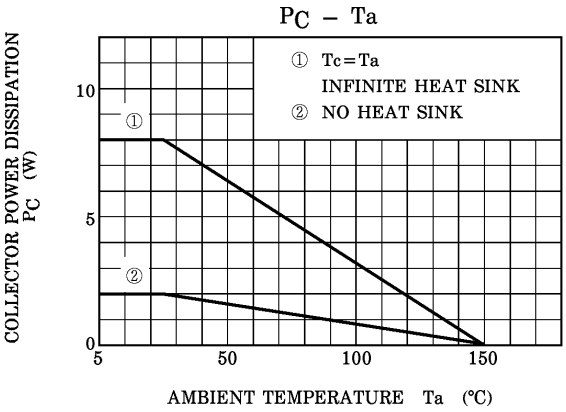

VBE (sat) – IC
COMMON EMITTER
IC/IB=5
Tc=25°C
BASE-EMITTER SATURATION VOLTAGE VBE (sat) (V)
COLLECTOR CURRENT IC (mA)


IC – VBE
COMMON EMITTER
VCE=10V
Tc=100°C
25
−25
COLLECTOR CURRENT IC (mA)
BASE-EMITTER VOLTAGE VBE (V)
0
20
40
60
80
100
0.2
0.4
0.6
0.8
1.0
1.2


fT – IC
COMMON EMITTER
Tc=25°C
VCE=20V
5
10
TRANSITION FREQUENCY fT (MHz)
COLLECTOR CURRENT IC (mA)
10
30
50
100
300
500
0.3
1
3
10
30
100


Cob – VCB
IE=0
f=1MHz
Tc=25°C
COLLECTOR OUTPUT CAPACITANCE Cob (pF)
COLLECTOR-BASE VOLTAGE VCB (V)
1
3
5
10
30
50
1
3
10
30
100
300


SAFE OPERATING AREA
IC MAX. (PULSED) ※
IC MAX. (CONTINUOUS)
300μs※
1ms※
10ms※
100ms※
500ms※
DC OPERATION Tc=25°C
※ SINGLE NONREPETITIVE PULSE Tc=25°C
CURVES MUST BE DERATED LINEARLY WITH INCREASE IN TEMPERATURE.
VCEO MAX.
COLLECTOR CURRENT IC (mA)
COLLECTOR-EMITTER VOLTAGE VCE (V)
2
5
10
30
50
100
300
3
10
30
100
300


PC – Ta
① Tc=Ta
INFINITE HEAT SINK
② NO HEAT SINK
①
②
COLLECTOR POWER DISSIPATION PC (W)
AMBIENT TEMPERATURE Ta (°C)
0
5
10
5
50
100
150

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