# SHINDENGEN

## Switching Power Transistor

**LSV Series**

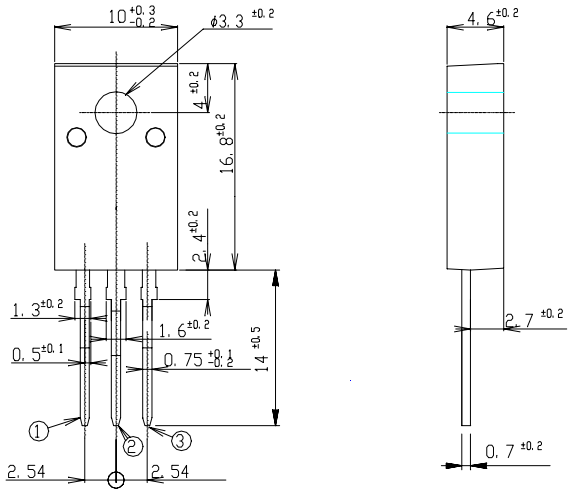
# 2SA1598
## (TP7T4)

## -7A PNP

## OUTLINE DIMENSIONS

Case : ITO-220

Unit : mm




## RATINGS

●Absolute Maximum Ratings

| Item | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Storage Temperature | Tstg | | −55～150 | ℃ |
| Junction Temperature | Tj | | 150 | ℃ |
| Collector to Base Voltage | $V_{CBO}$ | | −60 | V |
| Collector to Emitter Voltage | $V_{CEO}$ | | −40 | V |
| Emitter to Base Voltage | $V_{EBO}$ | | −7 | V |
| Collector Current DC | $I_C$ | | −7 | A |
| Collector Current Peak | $I_{CP}$ | | −14 | A |
| Base Current DC | $I_B$ | | −1.5 | A |
| Base Current Peak | $I_{BP}$ | | −2 | A |
| Total Transistor Dissipation | $P_T$ | Tc = 25℃ | 25 | W |
| Dielectric Strength | Vdis | Terminal to case, AC 1 minute | 2 | kV |
| Mounting Torque | TOR | (Recommended torque : 0.3N･m) | 0.5 | N･m |

●Electrical Characteristics (Tc=25℃)

| Item | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Collector to Emitter Sustaining Voltage | $V_{CEO}$(sus) | $I_C$ = −0.1A | Min −40 | V |
| Collector Cutoff Current | $I_{CBO}$ | At rated Voltage | Max −0.1 | mA |
| | $I_{CEO}$ | | Max −0.1 | |
| Emitter Cutoff Current | $I_{EBO}$ | At rated Voltage | Max −0.1 | mA |
| DC Current Gain | $h_{FE}$ | $V_{CE}$ = −2V, $I_C$ = −3.5A | Min 70 | |
| Collector to Emitter Saturation Voltage | $V_{CE}$(sat) | $I_C$ = −3.5A | Max −0.3 | V |
| Base to Emitter Saturation Voltage | $V_{BE}$(sat) | $I_B$ = −0.2A | Max −1.2 | V |
| Thermal Resistance | θ jc | Junction to case | Max 5 | ℃/W |
| Transition Frequency | $f_T$ | $V_{CE}$ = −10V, $I_C$ = −0.7A | TYP 50 | MHz |
| Turn on Time | ton | $I_C$ = −3.5A<br>$I_{B1}$ = −0.35A, $I_{B2}$ = −0.35A<br>$R_L$ = 8Ω , $V_{BB2}$ = −4V | Max 0.3 | μs |
| Storage Time | ts | | Max 1.5 | |
| Fall Time | tf | | Max 0.5 | |

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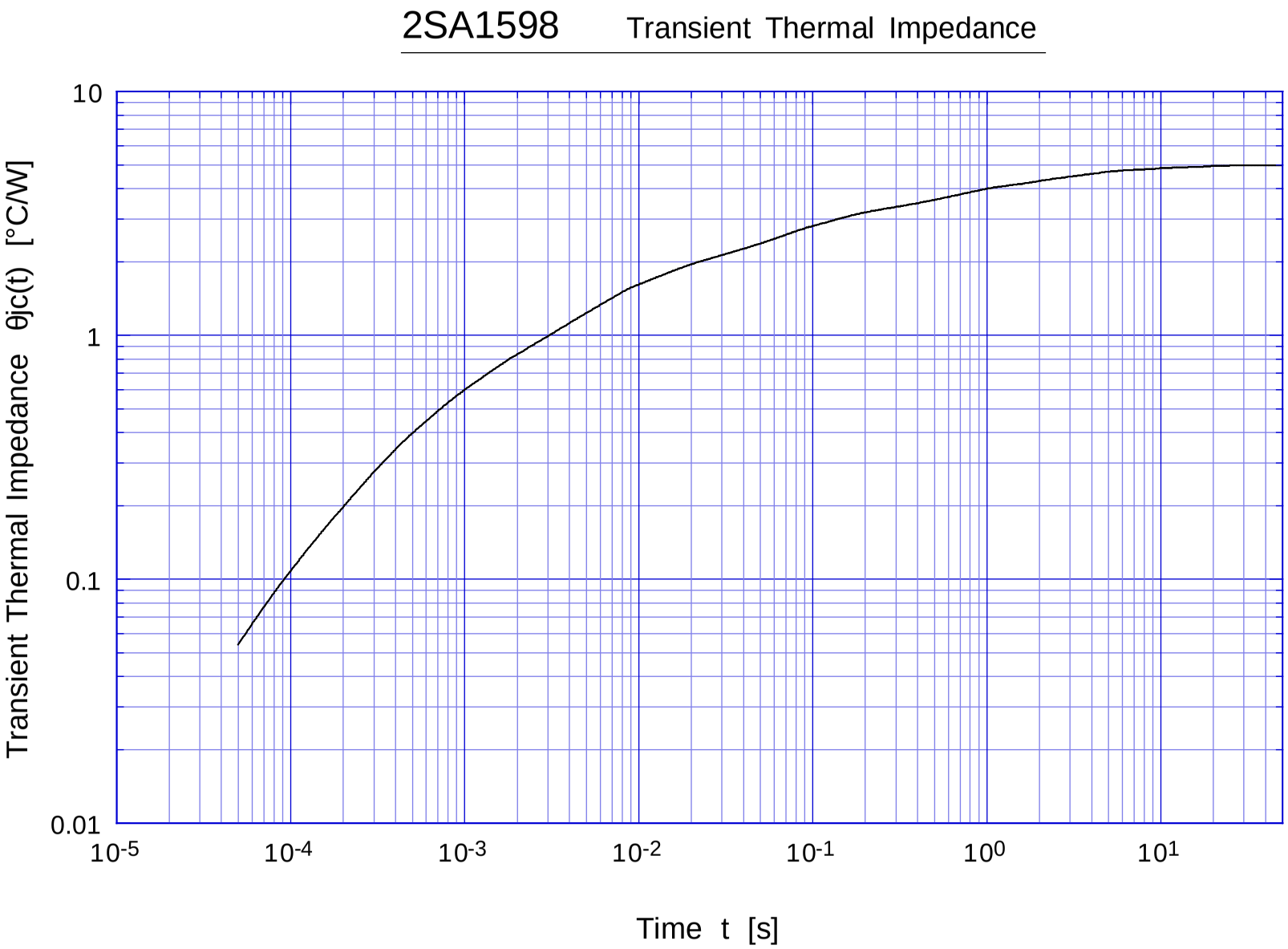
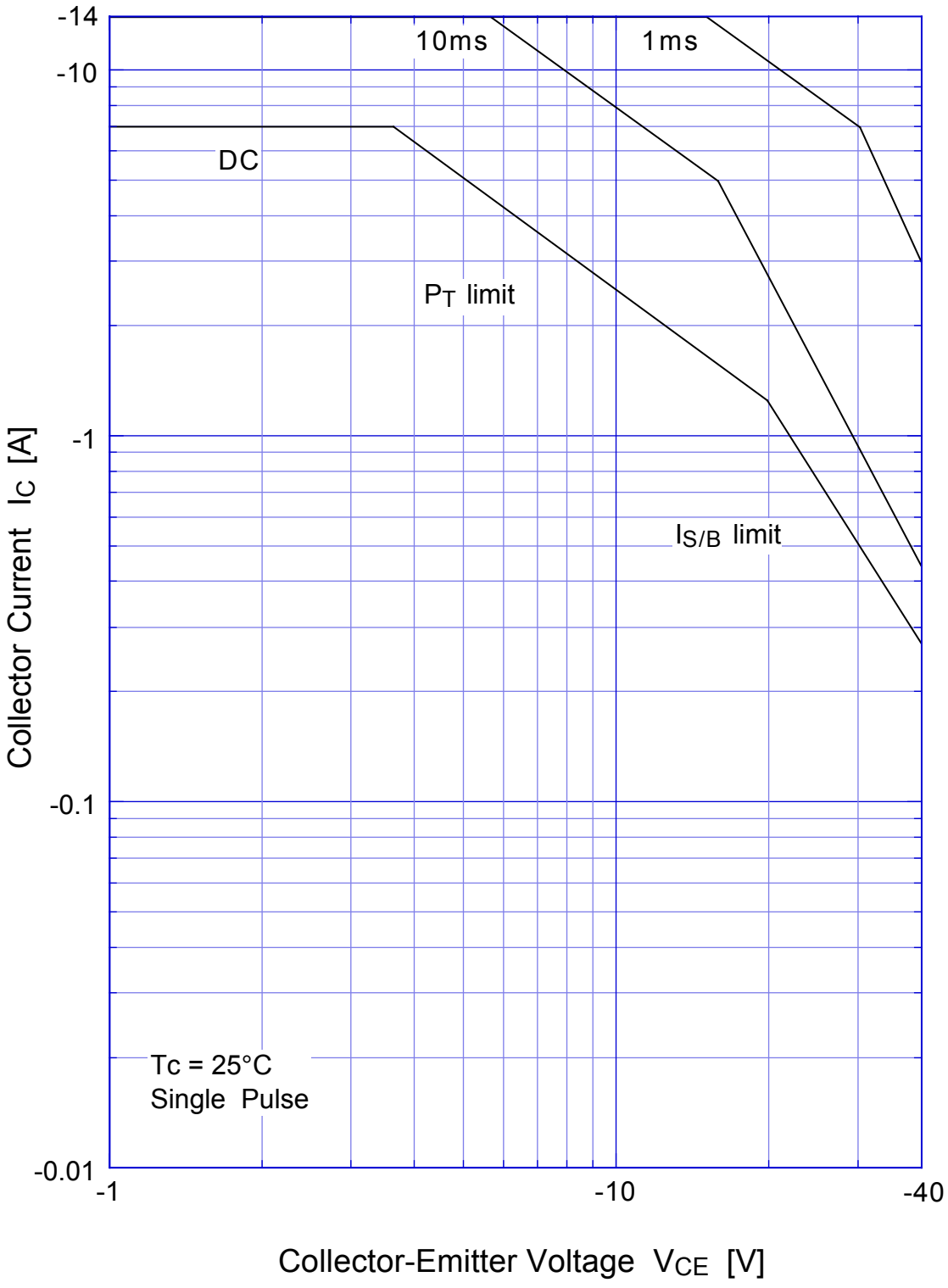
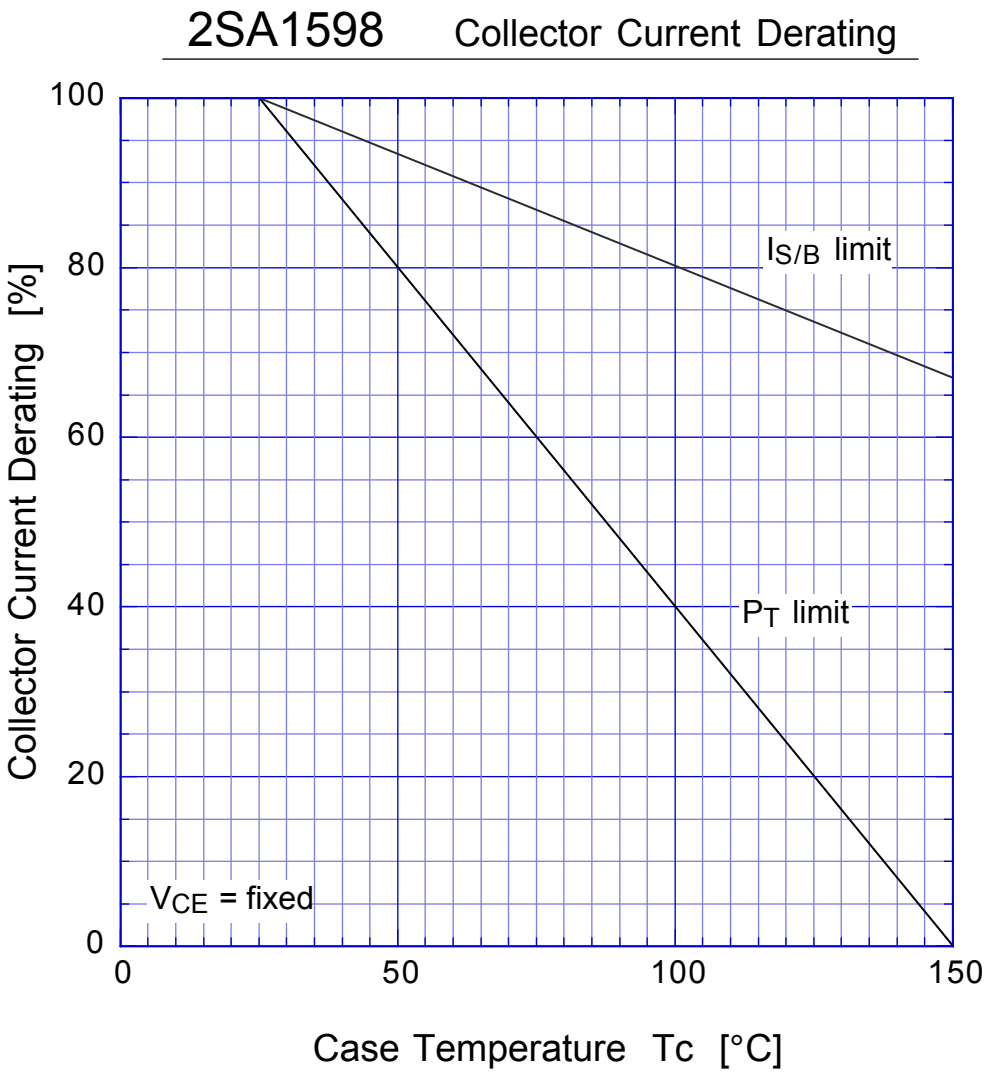
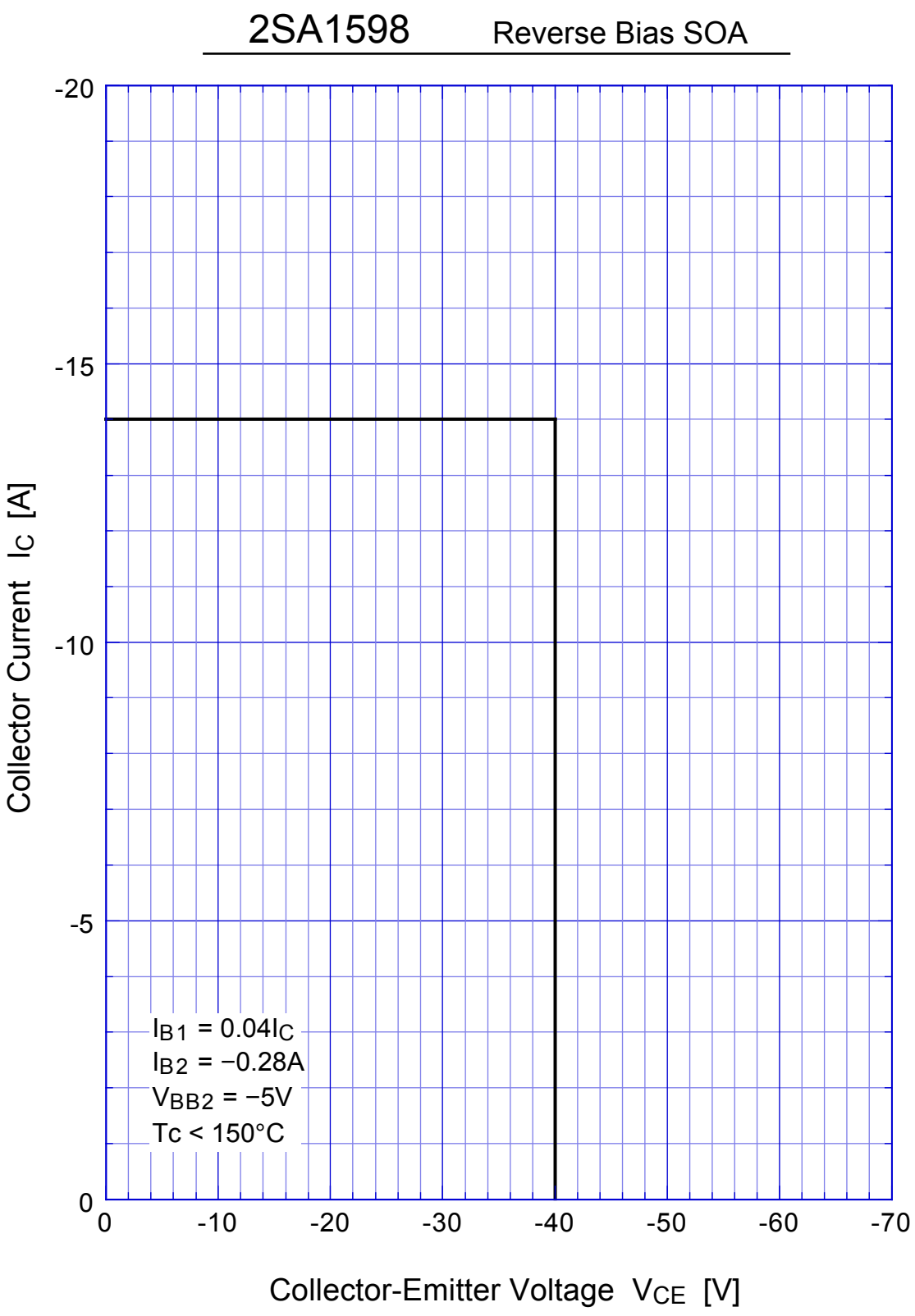

2SA1598
Transient Thermal Impedance
Transient Thermal Impedance θjc(t) [°C/W]
10
1
0.1
0.01
10-5
10-4
10-3
10-2
10-1
100
101
Time t [s]

# 2SA1598 Forward Bias SOA




2SA1598 Collector Current Derating
100
80
60
40
20
0
Collector Current Derating [%]
0
50
100
150
Case Temperature Tc [°C]
$I_{S/B}$ limit
$P_T$ limit
$V_{CE}$ = fixed


2SA1598
Reverse Bias SOA
-20
-15
-10
-5
0
Collector Current IC [A]
0
-10
-20
-30
-40
-50
-60
-70
Collector-Emitter Voltage VCE [V]
IB1 = 0.04IC
IB2 = −0.28A
VBB2 = −5V
Tc < 150°C