

# BC817K-40HR Datasheet



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DiGi Electronics Part Number	BC817K-40HR-DG
Manufacturer	<a href="#">Nexperia USA Inc.</a>
Manufacturer Product Number	BC817K-40HR
Description	TRANS NPN 45V 0.5A TO236AB
Detailed Description	Bipolar (BJT) Transistor NPN 45 V 500 mA 100MHz 3 50 mW Surface Mount TO-236AB



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## Purchase and inquiry

**Manufacturer Product Number:**

BC817K-40HR

**Series:**

-

**Transistor Type:**

NPN

**Voltage - Collector Emitter Breakdown (Max):**

45 V

**Current - Collector Cutoff (Max):**

100nA (ICBO)

**Power - Max:**

350 mW

**Operating Temperature:**

150°C (TJ)

**Qualification:**

AEC-Q101

**Package / Case:**

TO-236-3, SC-59, SOT-23-3

**Base Product Number:**

BC817

**Manufacturer:**

Nexperia USA Inc.

**Product Status:**

Active

**Current - Collector (Ic) (Max):**

500 mA

**Vce Saturation (Max) @ Ib, Ic:**

700mV @ 50mA, 500mA

**DC Current Gain (hFE) (Min) @ Ic, Vce:**

250 @ 100mA, 1V

**Frequency - Transition:**

100MHz

**Grade:**

Automotive

**Mounting Type:**

Surface Mount

**Supplier Device Package:**

TO-236AB

## Environmental & Export classification

**RoHS Status:**

ROHS3 Compliant

**REACH Status:**

REACH Unaffected

**HTSUS:**

8541.21.0075

**Moisture Sensitivity Level (MSL):**

1 (Unlimited)

**ECCN:**

EAR99



# BC817KH series

45 V, 500 mA NPN general-purpose transistors

Rev. 1 — 15 December 2017

Product data sheet

## 1 Product profile

### 1.1 General description

NPN general-purpose transistors in a small SOT23 (TO-236AB) Surface-Mounted Device (SMD) plastic package.

Table 1. Product overview

Type number	Package		PNP complement
	Nexperia	JEDEC	
BC817K-16H	SOT23	TO-236AB	-
BC817K-25H			-
BC817K-40H			-

### 1.2 Features and benefits

- Three current gain selections
- High power dissipation capability
- High-temperature applications up to 175 °C
- AEC-Q101 qualified

### 1.3 Applications

- General-purpose switching and amplification

### 1.4 Quick reference data

Table 2. Quick reference data

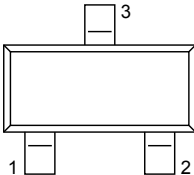
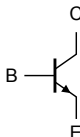
$T_{amb} = 25\text{ °C}$  unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit	
$V_{CEO}$	collector-emitter voltage	open base	-	-	45	V	
$I_C$	collector current		-	-	500	mA	
$I_{CM}$	peak collector current	single pulse; $t_p \leq 1\text{ ms}$	-	-	1	A	
$h_{FE}$	DC current gain	$V_{CE} = 1\text{ V}; I_C = 100\text{ mA}$					
	BC817K-16H		[1]	100	-	250	-
	BC817K-25H		[1]	160	-	400	-
	BC817K-40H		[1]	250	-	600	-

[1] pulsed;  $t_p \leq 300\text{ }\mu\text{s}$ ;  $\delta \leq 0.02$

## 2 Pinning information

Table 3. Pinning

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	B	base		 sym123
2	E	emitter		
3	C	collector		

## 3 Ordering information

Table 4. Ordering information

Type number	Package		Version
	Name	Description	
BC817K-16H	TO-236AB	Plastic surface-mounted package; 3 leads	SOT23
BC817K-25H			
BC817K-40H			

## 4 Marking

Table 5. Marking

Type number	Marking code
BC817K-16H	[1] %HD
BC817K-25H	[1] %HE
BC817K-40H	[1] %HF

[1] % = placeholder for manufacturing site code

## 5 Limiting values

**Table 6. Limiting values**

In accordance with the Absolute Maximum Rating System (IEC 60134).

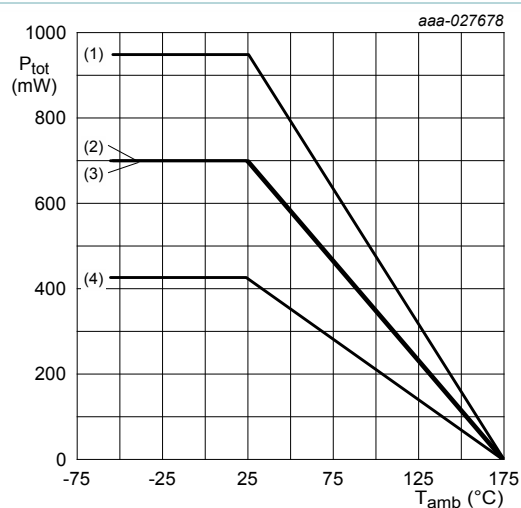
Symbol	Parameter	Conditions	Min	Max	Unit
$V_{CBO}$	collector-base voltage	open emitter	-	50	V
$V_{CEO}$	collector-emitter voltage	open base	-	45	V
$V_{EBO}$	emitter-base voltage	open collector	-	7	V
$I_C$	collector current		-	500	mA
$I_{CM}$	peak collector current	single pulse; $t_p \leq 1$ ms	-	1	A
$I_{BM}$	peak base current	single pulse; $t_p \leq 1$ ms	-	200	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25$ °C [1]	-	425	mW
		[2]	-	700	mW
		[3]	-	700	mW
		[4]	-	950	mW
$T_j$	junction temperature		-	175	°C
$T_{amb}$	ambient temperature		-55	175	°C
$T_{stg}$	storage temperature		-65	175	°C

[1] Device mounted on an FR4 Printed-Circuit-Board (PCB); single-sided copper; tin-plated and standard footprint.

[2] Device mounted on an FR4 Printed-Circuit-Board (PCB); single-sided copper; tin-plated; mounting pad for collector 1 cm<sup>2</sup>.

[3] Device mounted on an FR4 Printed-Circuit-Board (PCB); 4-layer copper; tin-plated and standard footprint.

[4] Device mounted on an FR4 Printed-Circuit-Board (PCB); 4-layer copper; tin-plated; mounting pad for collector 1 cm<sup>2</sup>.



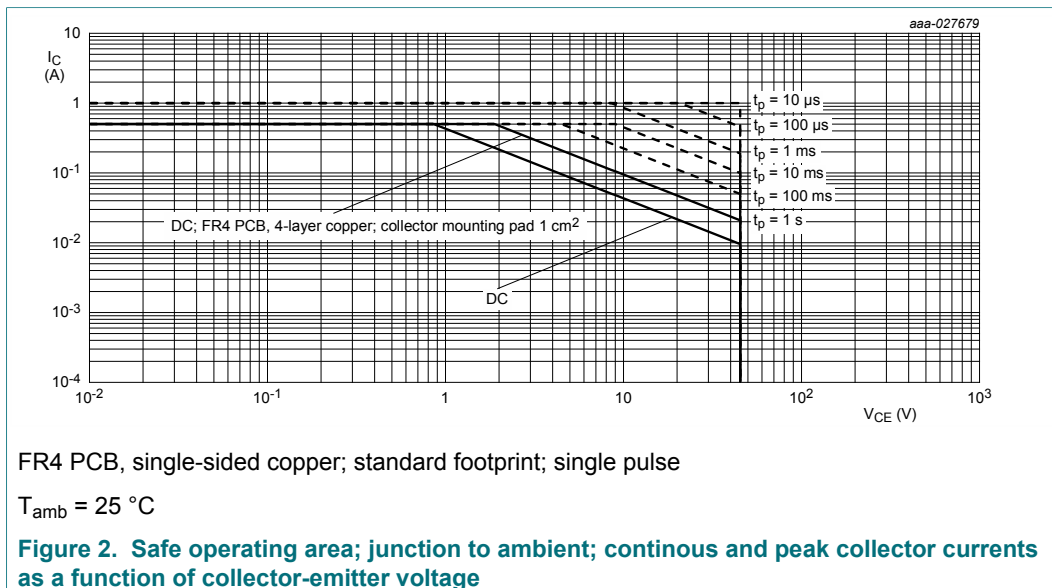
(1) FR4 PCB, 4-layer copper; 1 cm<sup>2</sup>

(2) FR4 PCB, single-sided copper; 1 cm<sup>2</sup>

(3) FR4 PCB, 4-layer copper; standard footprint

(4) FR4 PCB, single-sided copper; standard footprint

**Figure 1. Power derating curves**

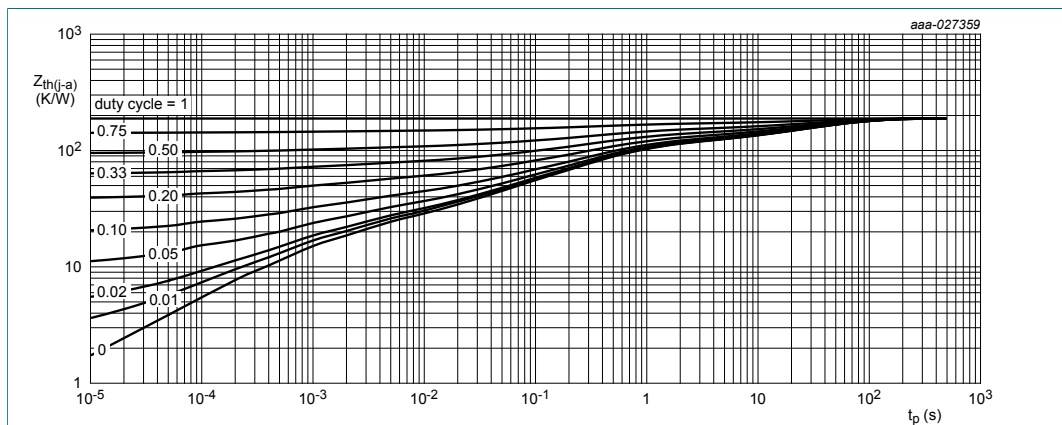


## 6 Thermal characteristics

Table 7. Thermal characteristics

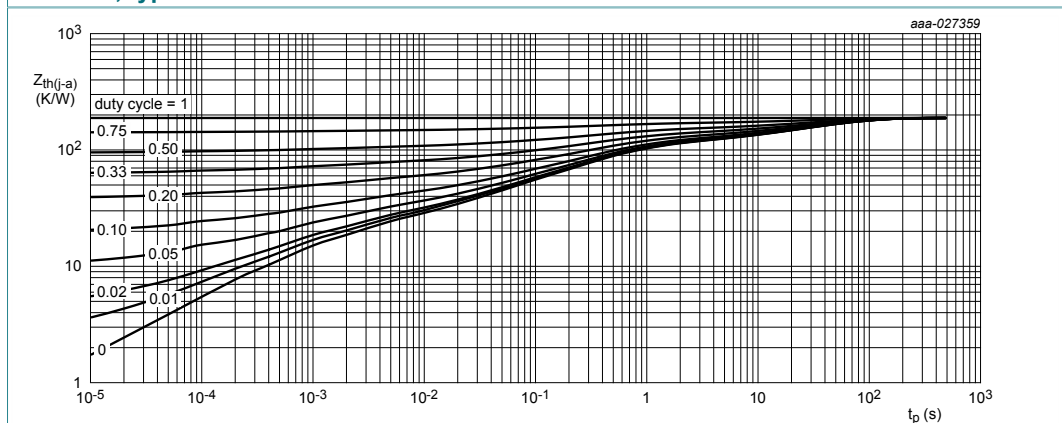
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	-	-	353	K/W
			[2]	-	-	215	K/W
			[3]	-	-	215	K/W
			[4]	-	-	158	K/W
$R_{th(j-sp)}$	thermal resistance from junction to solder point			-	-	60	K/W

- [1] Device mounted on an FR4 PCB; single-sided copper; tin-plated and standard footprint.  
 [2] Device mounted on an FR4 PCB; single-sided copper; tin-plated; mounting pad for collector 1 cm<sup>2</sup>.  
 [3] Device mounted on an FR4 PCB; 4-layer copper; tin-plated and standard footprint.  
 [4] Device mounted on an FR4 PCB; 4-layer copper; tin-plated; mounting pad for collector 1 cm<sup>2</sup>.



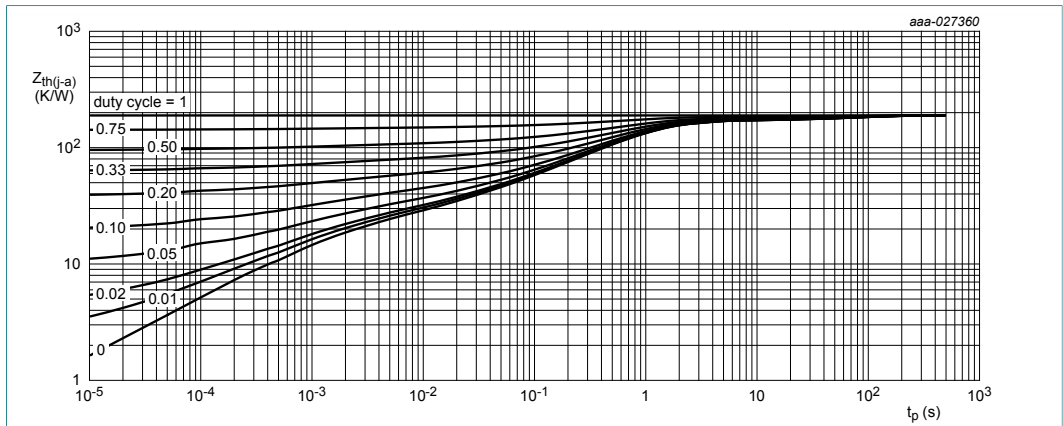
FR4 PCB; single-sided copper; tin-plated and standard footprint

Figure 3. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values



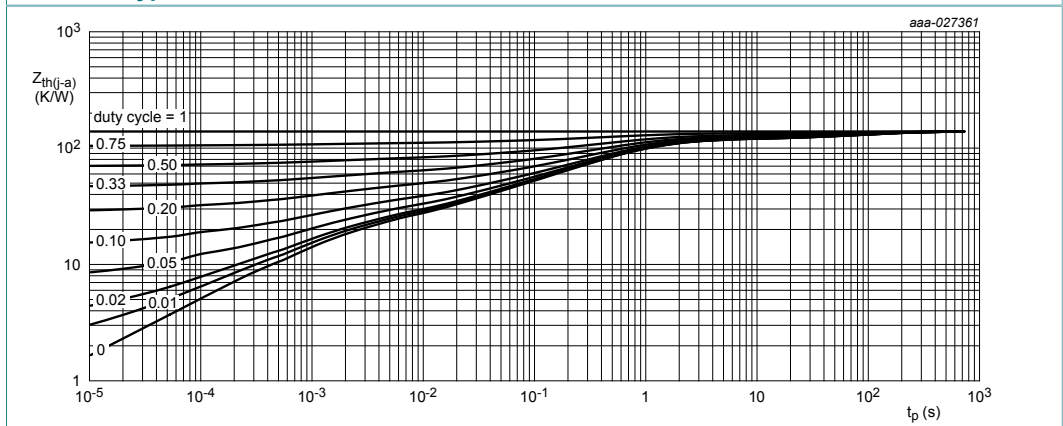
FR4 PCB; single-sided copper; tin-plated; mounting pad for collector 1 cm<sup>2</sup>

Figure 4. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values



FR4 PCB; 4-layer copper; tin plated and standard footprint

**Figure 5. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values**



FR4 PCB; 4-layer copper; tin plated; mounting pad for collector  $1 \text{ cm}^2$

**Figure 6. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values**

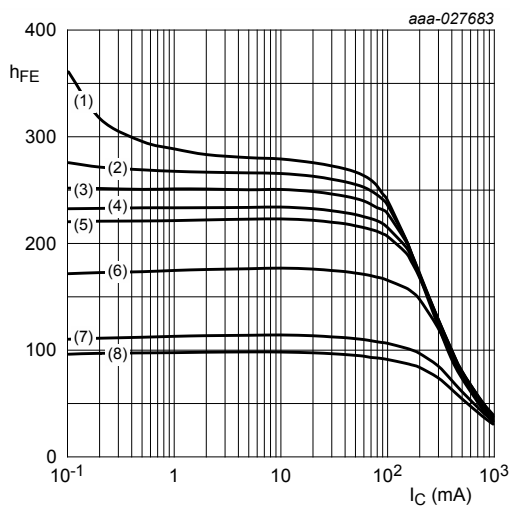


## 7 Characteristics

**Table 8. Characteristics**
 $T_{amb} = 25\text{ °C}$  unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit	
$V_{(BR)CBO}$	collector-base breakdown voltage	$I_C = 100\text{ }\mu\text{A}; I_E = 0\text{ A}$	50	-	-	V	
$V_{(BR)CEO}$	collector-emitter breakdown voltage	$I_C = 10\text{ mA}; I_B = 0\text{ A}$	45	-	-	V	
$V_{(BR)EBO}$	emitter-base breakdown voltage	$I_E = 100\text{ }\mu\text{A}; I_C = 0\text{ A}$	7	-	-	V	
$I_{CBO}$	collector-base cut-off current	$V_{CB} = 25\text{ V}; I_E = 0\text{ A}$	-	-	100	nA	
		$V_{CB} = 25\text{ V}; I_E = 0\text{ A}; T_j = 150\text{ °C}$	-	-	5	$\mu\text{A}$	
$I_{EBO}$	emitter-base cut-off current	$V_{EB} = 5\text{ V}; I_C = 0\text{ A}$	-	-	100	nA	
$h_{FE}$	DC current gain						
	BC817K-16H	$V_{CE} = 1\text{ V}; I_C = 100\text{ mA}$	[1]	100	-	250	
	BC817K-25H	$V_{CE} = 1\text{ V}; I_C = 100\text{ mA}$	[1]	160	-	400	
	BC817K-40H	$V_{CE} = 1\text{ V}; I_C = 100\text{ mA}$	[1]	250	-	600	
	BC817K-16H, -25H, -40H	$V_{CE} = 1\text{ V}; I_C = 500\text{ mA}$	[1]	40	-	-	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = 500\text{ mA}; I_B = 50\text{ mA}$	[1]	-	-	700	mV
$V_{BEsat}$	base-emitter saturation voltage	$I_C = 500\text{ mA}; I_B = 50\text{ mA}$	[1]	-	-	1.2	V
$V_{BE}$	base-emitter voltage	$V_{CE} = 1\text{ V}; I_C = 500\text{ mA}$	[1]	-	-	1.2	V
$f_T$	transition frequency	$V_{CE} = 5\text{ V}; I_C = 10\text{ mA}; f = 100\text{ MHz}$	100	-	-		MHz
$C_c$	collector capacitance	$V_{CB} = 10\text{ V}; I_E = i_e = 0\text{ A}; f = 1\text{ MHz}$	-	3	-		pF
$C_e$	emitter capacitance						
	BC817K-16H	$V_{EB} = 0.5\text{ V}; I_C = i_c = 0\text{ A}; f = 1\text{ MHz}$	-	44	-		pF
	BC817K-25H		-	39	-		pF
	BC817K-40H		-	39	-		pF

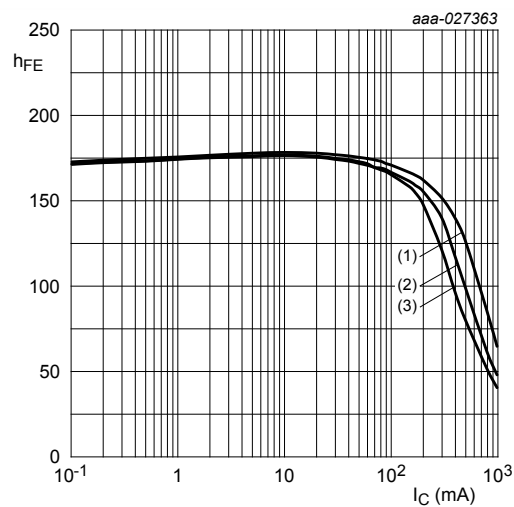
[1] pulsed;  $t_p \leq 300\text{ }\mu\text{s}$ ;  $\delta \leq 0.02$



$V_{CE} = 1 \text{ V}$

- (1)  $T_{amb} = 175 \text{ }^\circ\text{C}$
- (2)  $T_{amb} = 150 \text{ }^\circ\text{C}$
- (3)  $T_{amb} = 125 \text{ }^\circ\text{C}$
- (4)  $T_{amb} = 100 \text{ }^\circ\text{C}$
- (5)  $T_{amb} = 85 \text{ }^\circ\text{C}$
- (6)  $T_{amb} = 25 \text{ }^\circ\text{C}$
- (7)  $T_{amb} = -40 \text{ }^\circ\text{C}$
- (8)  $T_{amb} = -55 \text{ }^\circ\text{C}$

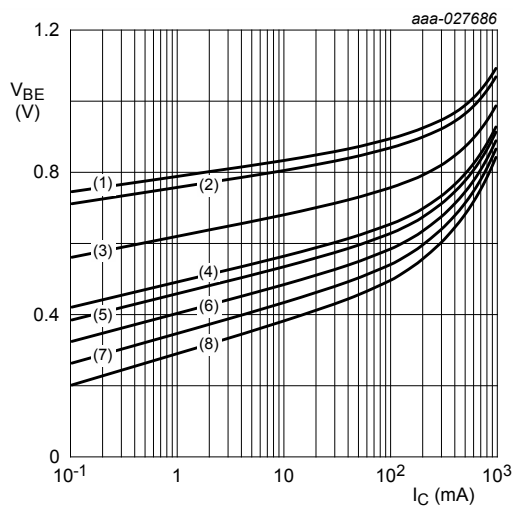
**Figure 7. BC817K-16H: DC current gain as a function of collector current; typical values**



$T_{amb} = 25 \text{ }^\circ\text{C}$

- (1)  $V_{CE} = 5 \text{ V}$
- (2)  $V_{CE} = 2 \text{ V}$
- (3)  $V_{CE} = 1 \text{ V}$

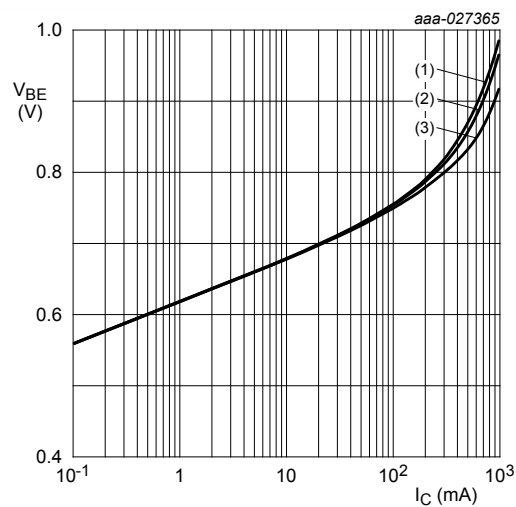
**Figure 8. BC817K-16H: DC current gain as a function of collector current; typical values**



$V_{CE} = 1 \text{ V}$

- (1)  $T_{amb} = -55 \text{ }^\circ\text{C}$
- (2)  $T_{amb} = -40 \text{ }^\circ\text{C}$
- (3)  $T_{amb} = 25 \text{ }^\circ\text{C}$
- (4)  $T_{amb} = 85 \text{ }^\circ\text{C}$
- (5)  $T_{amb} = 100 \text{ }^\circ\text{C}$
- (6)  $T_{amb} = 125 \text{ }^\circ\text{C}$
- (7)  $T_{amb} = 150 \text{ }^\circ\text{C}$
- (8)  $T_{amb} = 175 \text{ }^\circ\text{C}$

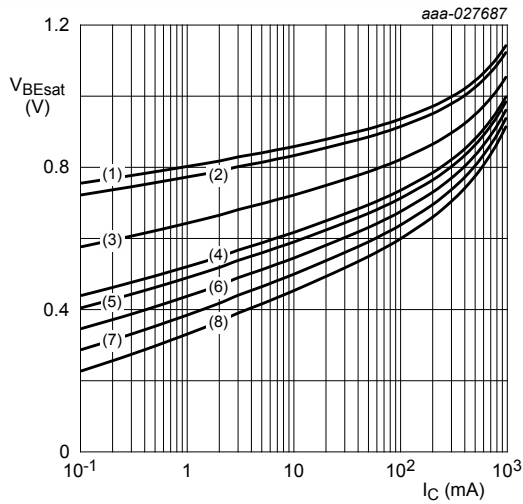
**Figure 9. BC817K-16H: Base-emitter voltage as a function of collector current; typical values**



$T_{amb} = 25 \text{ }^\circ\text{C}$

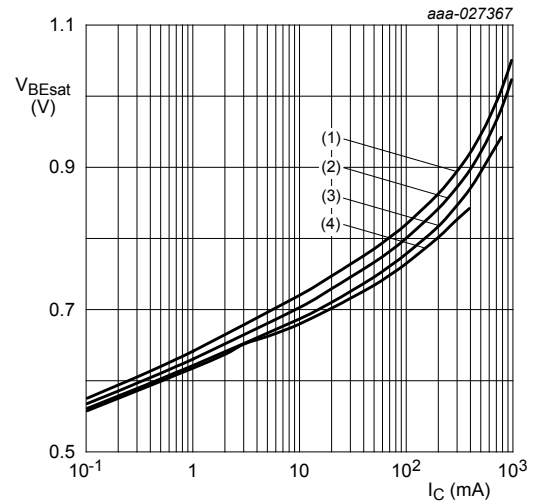
- (1)  $V_{CE} = 1 \text{ V}$
- (2)  $V_{CE} = 2 \text{ V}$
- (3)  $V_{CE} = 5 \text{ V}$

**Figure 10. BC817K-16H: Base-emitter voltage as a function of collector current; typical values**



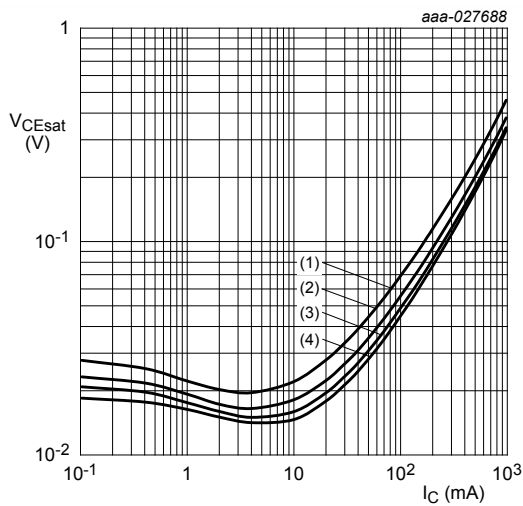
- $I_C/I_B = 10$
- (1)  $T_{amb} = -55\text{ °C}$
  - (2)  $T_{amb} = -40\text{ °C}$
  - (3)  $T_{amb} = 25\text{ °C}$
  - (4)  $T_{amb} = 85\text{ °C}$
  - (5)  $T_{amb} = 100\text{ °C}$
  - (6)  $T_{amb} = 125\text{ °C}$
  - (7)  $T_{amb} = 150\text{ °C}$
  - (8)  $T_{amb} = 175\text{ °C}$

**Figure 11. BC817K-16H: Base-emitter saturation voltage as a function of collector current; typical values**



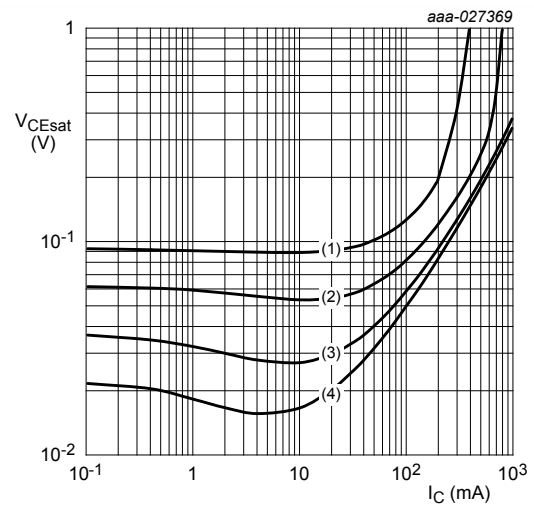
- $T_{amb} = 25\text{ °C}$
- (1)  $I_C/I_B = 10$
  - (2)  $I_C/I_B = 20$
  - (3)  $I_C/I_B = 50$
  - (4)  $I_C/I_B = 100$

**Figure 12. BC817K-16H: Base-emitter saturation voltage as a function of collector current; typical values**



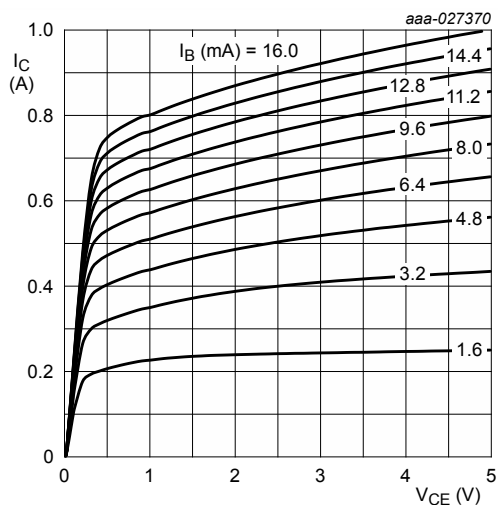
- $I_C/I_B = 10$
- (1)  $T_{amb} = 175\text{ °C}$
  - (2)  $T_{amb} = 85\text{ °C}$
  - (3)  $T_{amb} = 25\text{ °C}$
  - (4)  $T_{amb} = -40\text{ °C}$

**Figure 13. BC817K-16H: Collector-emitter saturation voltage as a function of collector current; typical values**



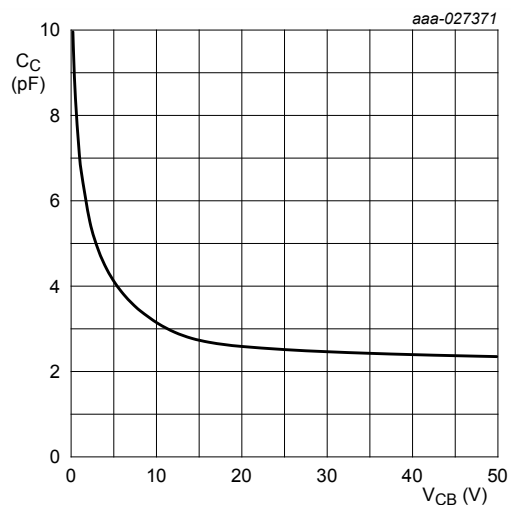
- $T_{amb} = 25\text{ °C}$
- (1)  $I_C/I_B = 100$
  - (2)  $I_C/I_B = 50$
  - (3)  $I_C/I_B = 20$
  - (4)  $I_C/I_B = 10$

**Figure 14. BC817K-16H: Collector-emitter saturation voltage as a function of collector current; typical values**



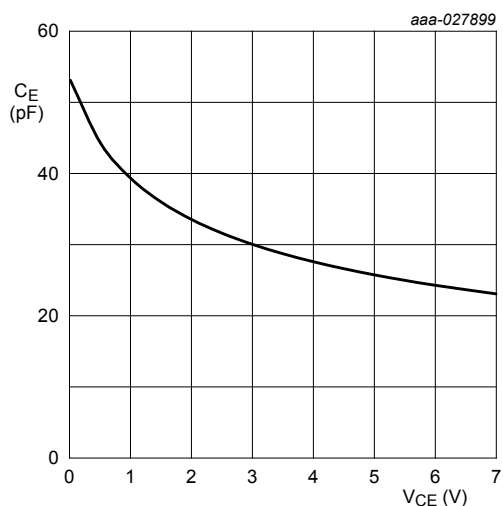
$T_{amb} = 25\text{ }^\circ\text{C}$

**Figure 15. BC817K-16H: Collector current as a function of collector-emitter voltage; typical values**



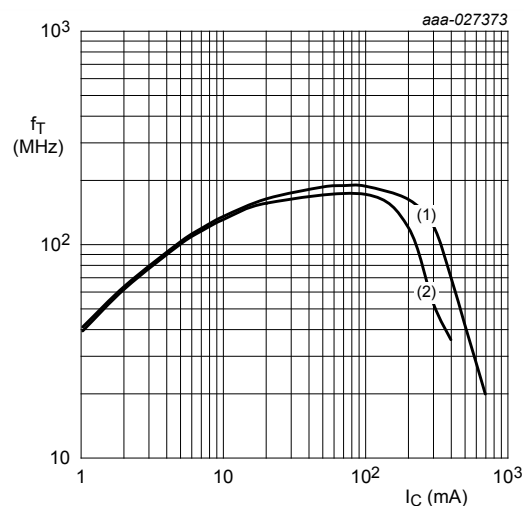
$f = 1\text{ MHz}; T_{amb} = 25\text{ }^\circ\text{C}$

**Figure 16. BC817K-16H: Collector capacitance as a function of collector-base voltage; typical values**



$f = 1\text{ MHz}; T_{amb} = 25\text{ }^\circ\text{C}$

**Figure 17. BC817K-16H: Emitter capacitance as a function of emitter-base voltage; typical values**

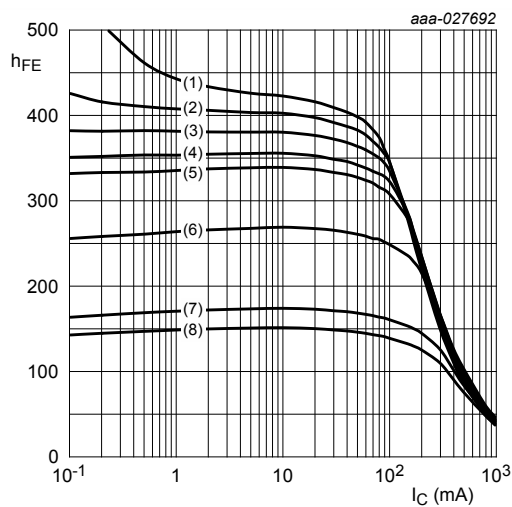


$f = 100\text{ MHz}; T_{amb} = 25\text{ }^\circ\text{C}$

(1)  $V_{CE} = 5\text{ V}$

(2)  $V_{CE} = 1\text{ V}$

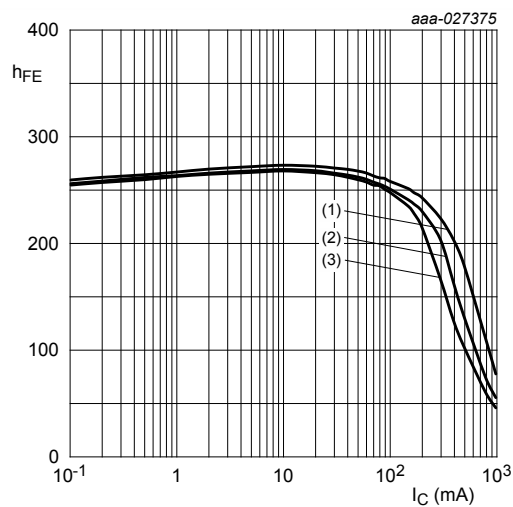
**Figure 18. BC817K-16H: Transition frequency as a function of collector current voltage; typical values**



$V_{CE} = 1 \text{ V}$

- (1)  $T_{amb} = 175 \text{ }^\circ\text{C}$
- (2)  $T_{amb} = 150 \text{ }^\circ\text{C}$
- (3)  $T_{amb} = 125 \text{ }^\circ\text{C}$
- (4)  $T_{amb} = 100 \text{ }^\circ\text{C}$
- (5)  $T_{amb} = 85 \text{ }^\circ\text{C}$
- (6)  $T_{amb} = 25 \text{ }^\circ\text{C}$
- (7)  $T_{amb} = -40 \text{ }^\circ\text{C}$
- (8)  $T_{amb} = -55 \text{ }^\circ\text{C}$

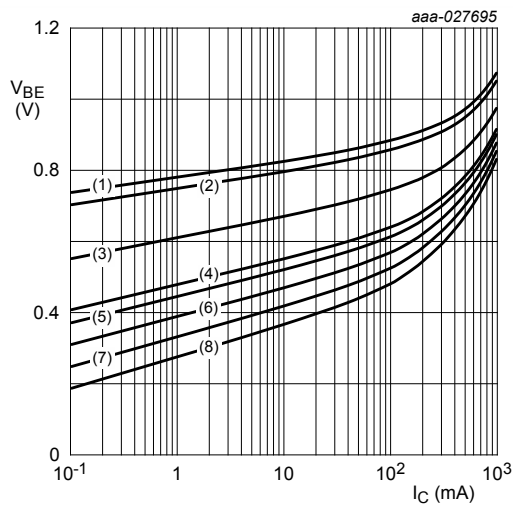
**Figure 19. BC817K-25H: DC current gain as a function of collector current; typical values**



$T_{amb} = 25 \text{ }^\circ\text{C}$

- (1)  $V_{CE} = 5 \text{ V}$
- (2)  $V_{CE} = 2 \text{ V}$
- (3)  $V_{CE} = 1 \text{ V}$

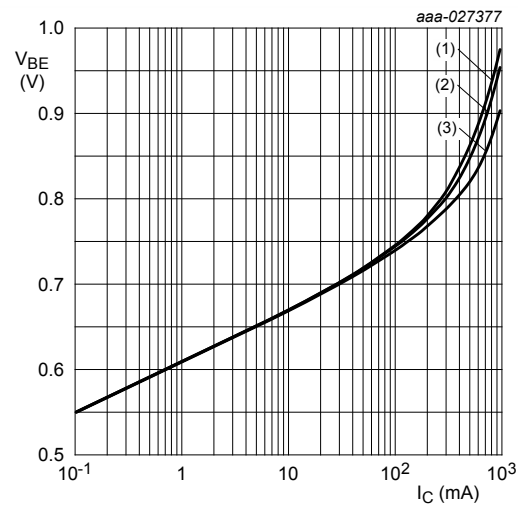
**Figure 20. BC817K-25H: DC current gain as a function of collector current; typical values**



$V_{CE} = 1 \text{ V}$

- (1)  $T_{amb} = -55 \text{ °C}$
- (2)  $T_{amb} = -40 \text{ °C}$
- (3)  $T_{amb} = 25 \text{ °C}$
- (4)  $T_{amb} = 85 \text{ °C}$
- (5)  $T_{amb} = 100 \text{ °C}$
- (6)  $T_{amb} = 125 \text{ °C}$
- (7)  $T_{amb} = 150 \text{ °C}$
- (8)  $T_{amb} = 175 \text{ °C}$

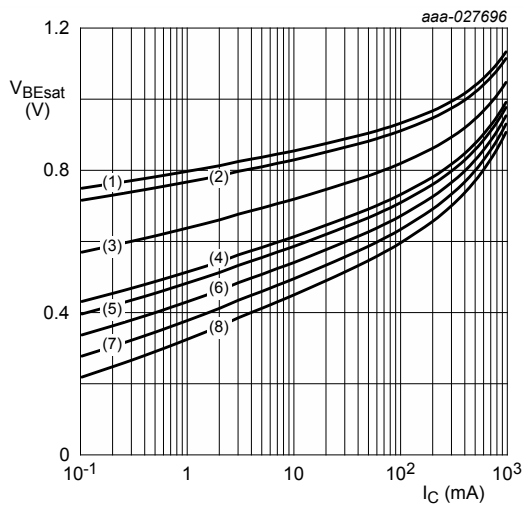
**Figure 21. BC817K-25H: Base-emitter voltage as a function of collector current; typical values**



$T_{amb} = 25 \text{ °C}$

- (1)  $V_{CE} = 1 \text{ V}$
- (2)  $V_{CE} = 2 \text{ V}$
- (3)  $V_{CE} = 5 \text{ V}$

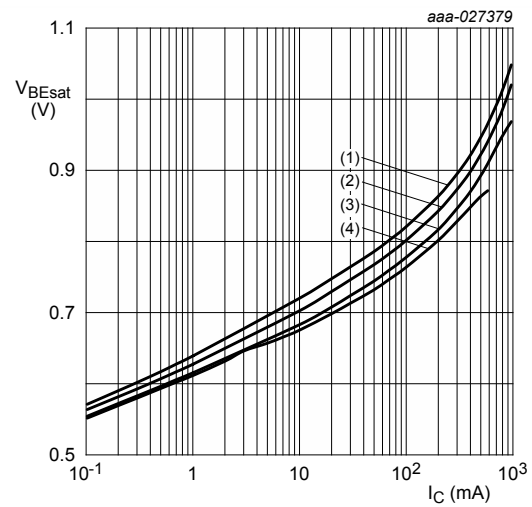
**Figure 22. BC817K-25H: Base-emitter voltage as a function of collector current; typical values**



$I_C/I_B = 10$

- (1)  $T_{amb} = -55\text{ °C}$
- (2)  $T_{amb} = -40\text{ °C}$
- (3)  $T_{amb} = 25\text{ °C}$
- (4)  $T_{amb} = 85\text{ °C}$
- (5)  $T_{amb} = 100\text{ °C}$
- (6)  $T_{amb} = 125\text{ °C}$
- (7)  $T_{amb} = 150\text{ °C}$
- (8)  $T_{amb} = 175\text{ °C}$

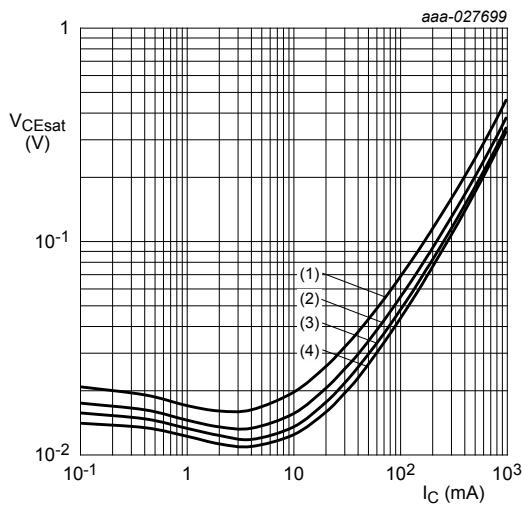
**Figure 23. BC817K-25H: Base-emitter saturation voltage as a function of collector current; typical values**



$T_{amb} = 25\text{ °C}$

- (1)  $I_C/I_B = 10$
- (2)  $I_C/I_B = 20$
- (3)  $I_C/I_B = 50$
- (4)  $I_C/I_B = 100$

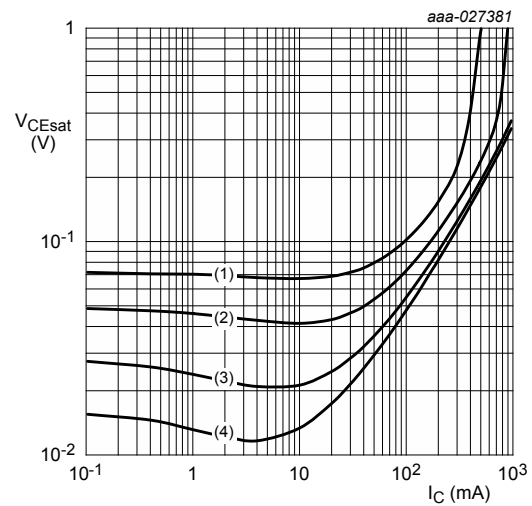
**Figure 24. BC817K-25H: Base-emitter saturation voltage as a function of collector current; typical values**



$I_C/I_B = 10$

- (1)  $T_{amb} = 175\text{ °C}$
- (2)  $T_{amb} = 85\text{ °C}$
- (3)  $T_{amb} = 25\text{ °C}$
- (4)  $T_{amb} = -40\text{ °C}$

**Figure 25. BC817K-25H: Collector-emitter saturation voltage as a function of collector current; typical values**

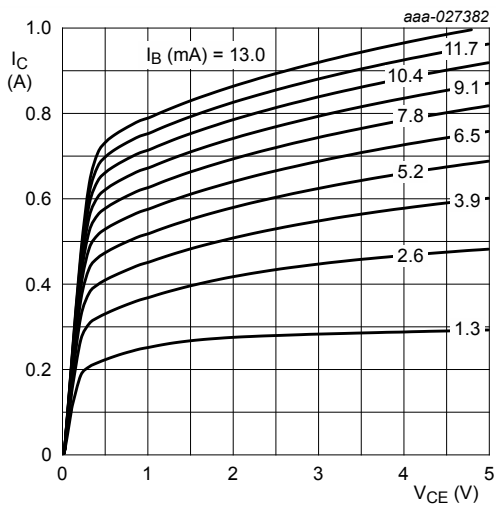


$T_{amb} = 25\text{ °C}$

- (1)  $I_C/I_B = 100$
- (2)  $I_C/I_B = 50$
- (3)  $I_C/I_B = 20$
- (4)  $I_C/I_B = 10$

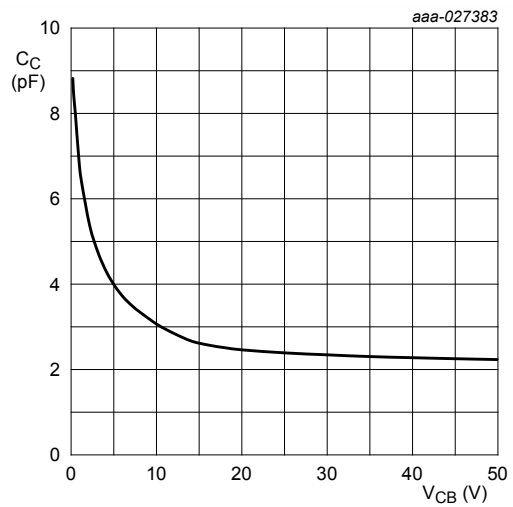
**Figure 26. BC817K-25H: Collector-emitter saturation voltage as a function of collector current; typical values**





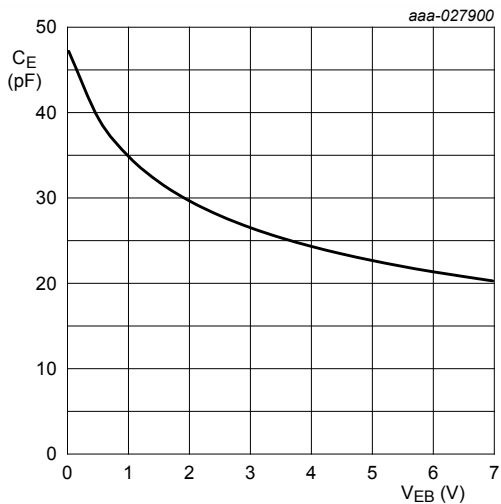
$T_{amb} = 25\text{ }^{\circ}\text{C}$

**Figure 27. BC817K-25H: Collector current as a function of collector-emitter voltage; typical values**



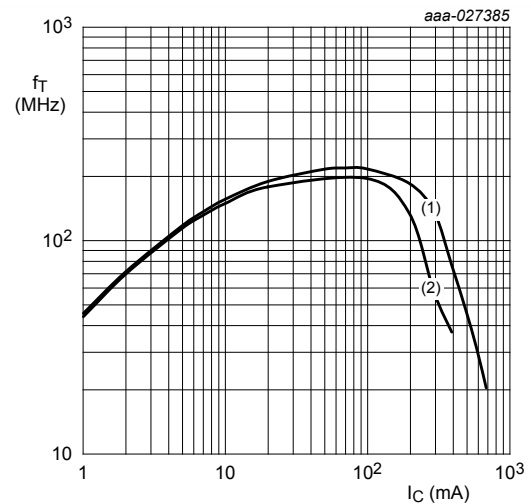
$f = 1\text{ MHz}; T_{amb} = 25\text{ }^{\circ}\text{C}$

**Figure 28. BC817K-25H: Collector capacitance as a function of collector-base voltage; typical values**



$f = 1\text{ MHz}; T_{amb} = 25\text{ }^{\circ}\text{C}$

**Figure 29. BC817K-25H: Emitter capacitance as a function of emitter-base voltage; typical values**

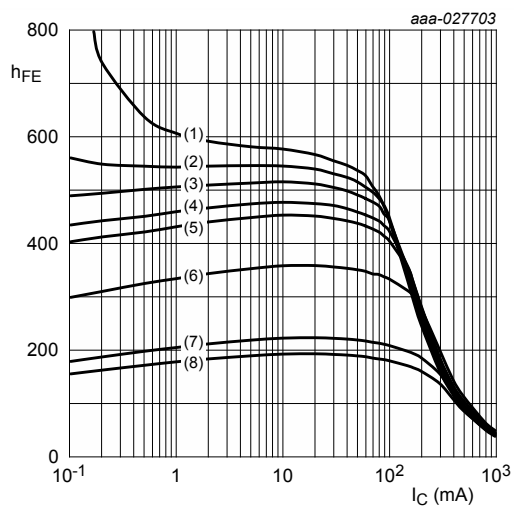


$f = 100\text{ MHz}; T_{amb} = 25\text{ }^{\circ}\text{C}$

(1)  $V_{CE} = 5\text{ V}$

(2)  $V_{CE} = 1\text{ V}$

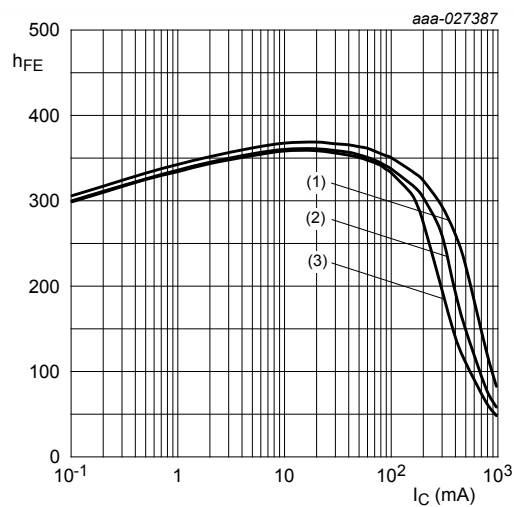
**Figure 30. BC817K-25H: Transition frequency as a function of collector current voltage; typical values**



$V_{CE} = 1 \text{ V}$

- (1)  $T_{amb} = 175 \text{ }^\circ\text{C}$
- (2)  $T_{amb} = 150 \text{ }^\circ\text{C}$
- (3)  $T_{amb} = 125 \text{ }^\circ\text{C}$
- (4)  $T_{amb} = 100 \text{ }^\circ\text{C}$
- (5)  $T_{amb} = 85 \text{ }^\circ\text{C}$
- (6)  $T_{amb} = 25 \text{ }^\circ\text{C}$
- (7)  $T_{amb} = -40 \text{ }^\circ\text{C}$
- (8)  $T_{amb} = -55 \text{ }^\circ\text{C}$

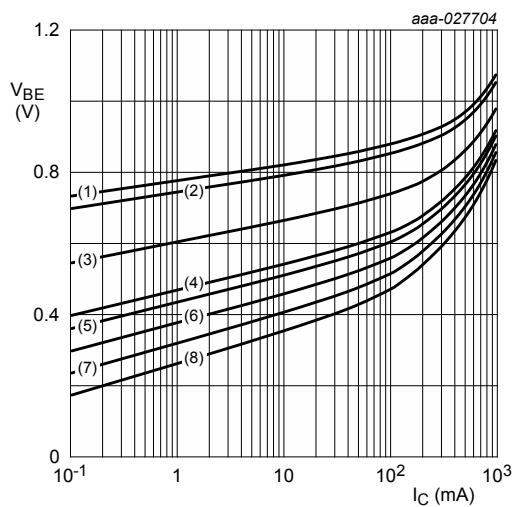
**Figure 31. BC817K-40H: DC current gain as a function of collector current; typical values**



$T_{amb} = 25 \text{ }^\circ\text{C}$

- (1)  $V_{CE} = 5 \text{ V}$
- (2)  $V_{CE} = 2 \text{ V}$
- (3)  $V_{CE} = 1 \text{ V}$

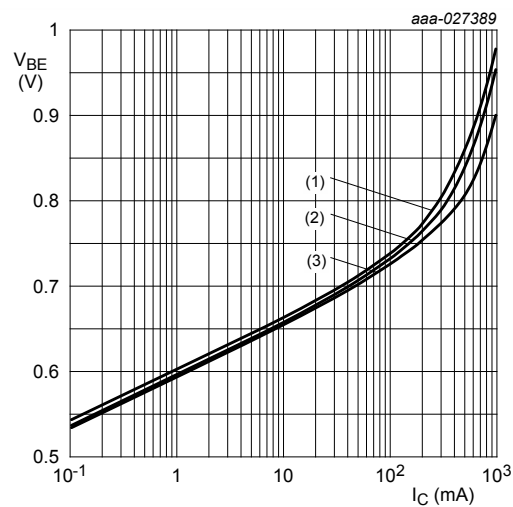
**Figure 32. BC817K-40H: DC current gain as a function of collector current; typical values**



$V_{CE} = 1 \text{ V}$

- (1)  $T_{amb} = -55 \text{ }^\circ\text{C}$
- (2)  $T_{amb} = -40 \text{ }^\circ\text{C}$
- (3)  $T_{amb} = 25 \text{ }^\circ\text{C}$
- (4)  $T_{amb} = 85 \text{ }^\circ\text{C}$
- (5)  $T_{amb} = 100 \text{ }^\circ\text{C}$
- (6)  $T_{amb} = 125 \text{ }^\circ\text{C}$
- (7)  $T_{amb} = 150 \text{ }^\circ\text{C}$
- (8)  $T_{amb} = 175 \text{ }^\circ\text{C}$

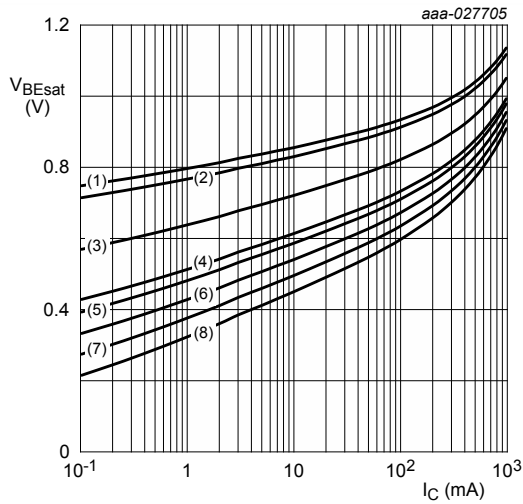
**Figure 33. BC817K-40H: Base-emitter voltage as a function of collector current; typical values**



$T_{amb} = 25 \text{ }^\circ\text{C}$

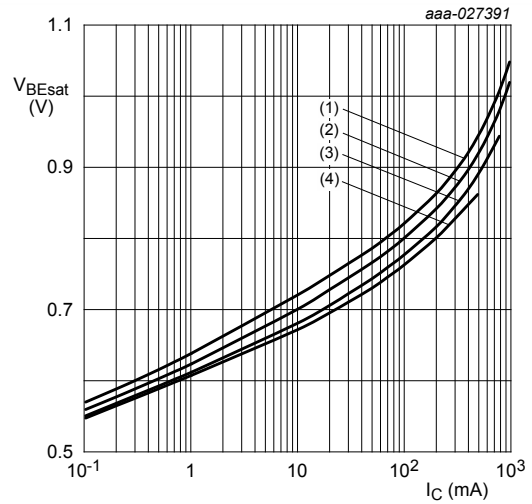
- (1)  $V_{CE} = 1 \text{ V}$
- (2)  $V_{CE} = 2 \text{ V}$
- (3)  $V_{CE} = 5 \text{ V}$

**Figure 34. BC817K-40H: Base-emitter voltage as a function of collector current; typical values**



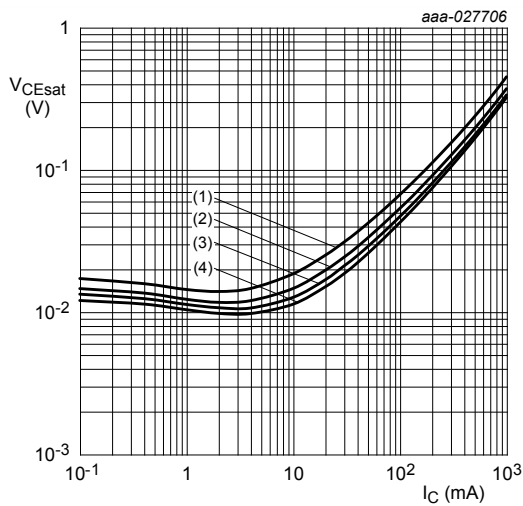
- $I_C/I_B = 10$
- (1)  $T_{amb} = -55\text{ °C}$
  - (2)  $T_{amb} = -40\text{ °C}$
  - (3)  $T_{amb} = 25\text{ °C}$
  - (4)  $T_{amb} = 85\text{ °C}$
  - (5)  $T_{amb} = 100\text{ °C}$
  - (6)  $T_{amb} = 125\text{ °C}$
  - (7)  $T_{amb} = 150\text{ °C}$
  - (8)  $T_{amb} = 175\text{ °C}$

**Figure 35. BC817K-40H: Base-emitter saturation voltage as a function of collector current; typical values**



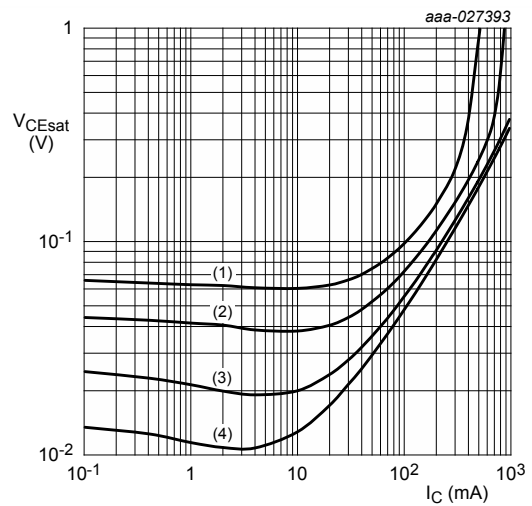
- $T_{amb} = 25\text{ °C}$
- (1)  $I_C/I_B = 10$
  - (2)  $I_C/I_B = 20$
  - (3)  $I_C/I_B = 50$
  - (4)  $I_C/I_B = 100$

**Figure 36. BC817K-40H: Base-emitter saturation voltage as a function of collector current; typical values**



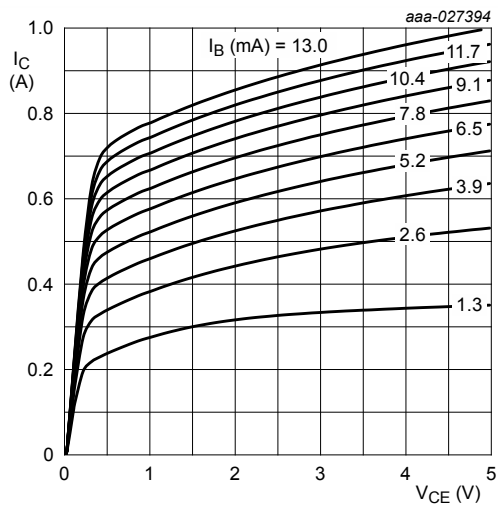
- $I_C/I_B = 10$
- (1)  $T_{amb} = 175\text{ °C}$
  - (2)  $T_{amb} = 85\text{ °C}$
  - (3)  $T_{amb} = 25\text{ °C}$
  - (4)  $T_{amb} = -40\text{ °C}$

**Figure 37. BC817K-40H: Collector-emitter saturation voltage as a function of collector current; typical values**



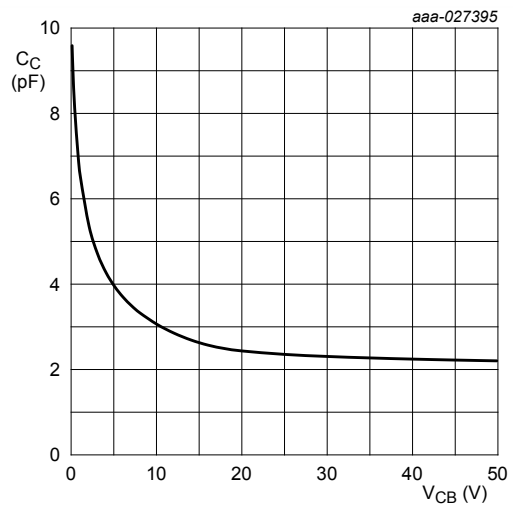
- $T_{amb} = 25\text{ °C}$
- (1)  $I_C/I_B = 100$
  - (2)  $I_C/I_B = 50$
  - (3)  $I_C/I_B = 20$
  - (4)  $I_C/I_B = 10$

**Figure 38. BC817K-40H: Collector-emitter saturation voltage as a function of collector current; typical values**



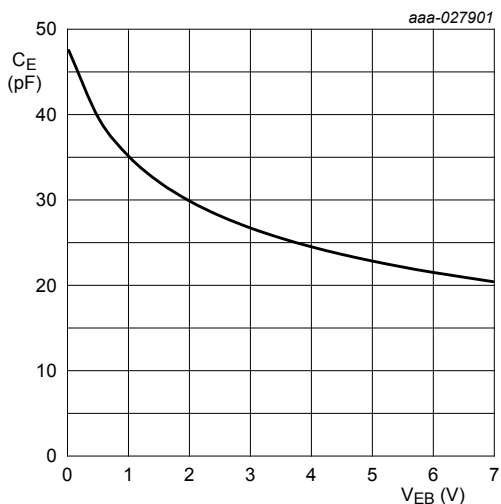
$T_{amb} = 25\text{ °C}$

**Figure 39. BC817K-40H: Collector current as a function of collector-emitter voltage; typical values**



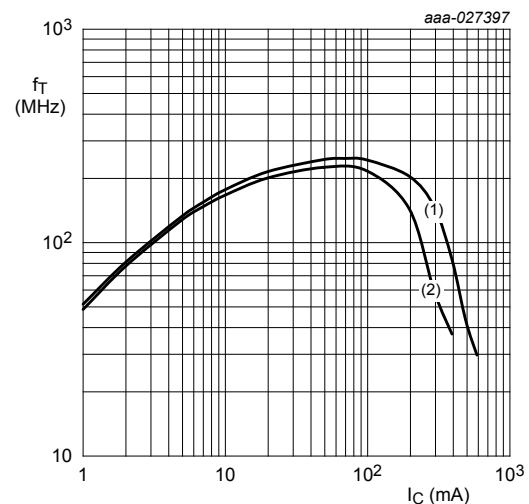
$f = 1\text{ MHz}; T_{amb} = 25\text{ °C}$

**Figure 40. BC817K-40H: Collector capacitance as a function of collector-base voltage; typical values**



$f = 1\text{ MHz}; T_{amb} = 25\text{ °C}$

**Figure 41. BC817K-40H: Emitter capacitance as a function of emitter-base voltage; typical values**



$f = 100\text{ MHz}; T_{amb} = 25\text{ °C}$

(1)  $V_{CE} = 5\text{ V}$

(2)  $V_{CE} = 1\text{ V}$

**Figure 42. BC817K-40H: Transition frequency as a function of collector current voltage; typical values**

## 8 Test information

### 8.1 Quality information

This product has been qualified in accordance with the Automotive Electronics Council (AEC) standard Q101 - Stress test qualification for discrete semiconductors, and is suitable for use in automotive applications.

## 9 Package outline

Table 9. Package outline

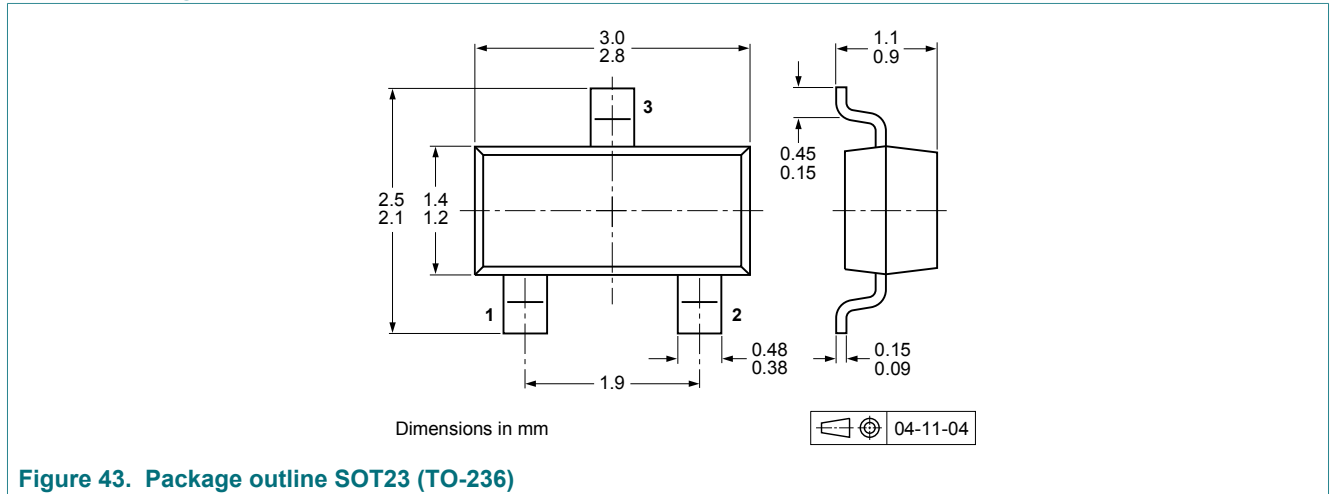


Figure 43. Package outline SOT23 (TO-236)

## 10 Soldering

Table 10. Soldering

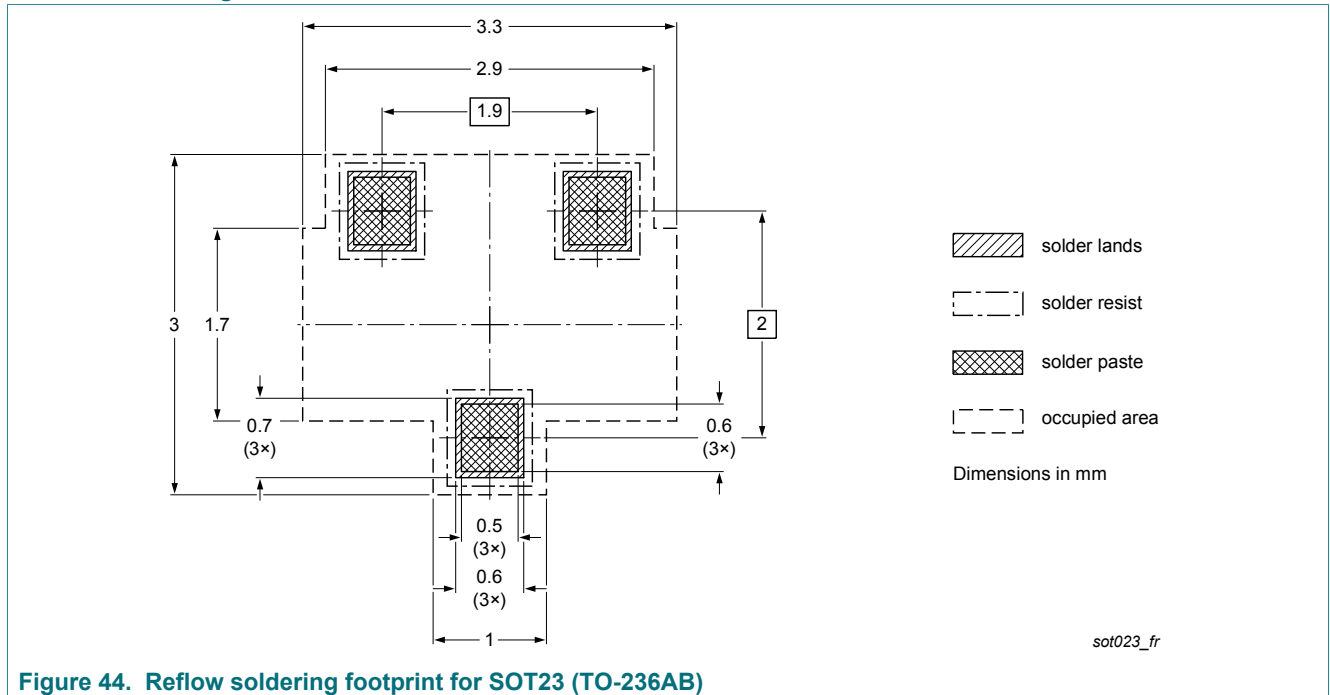
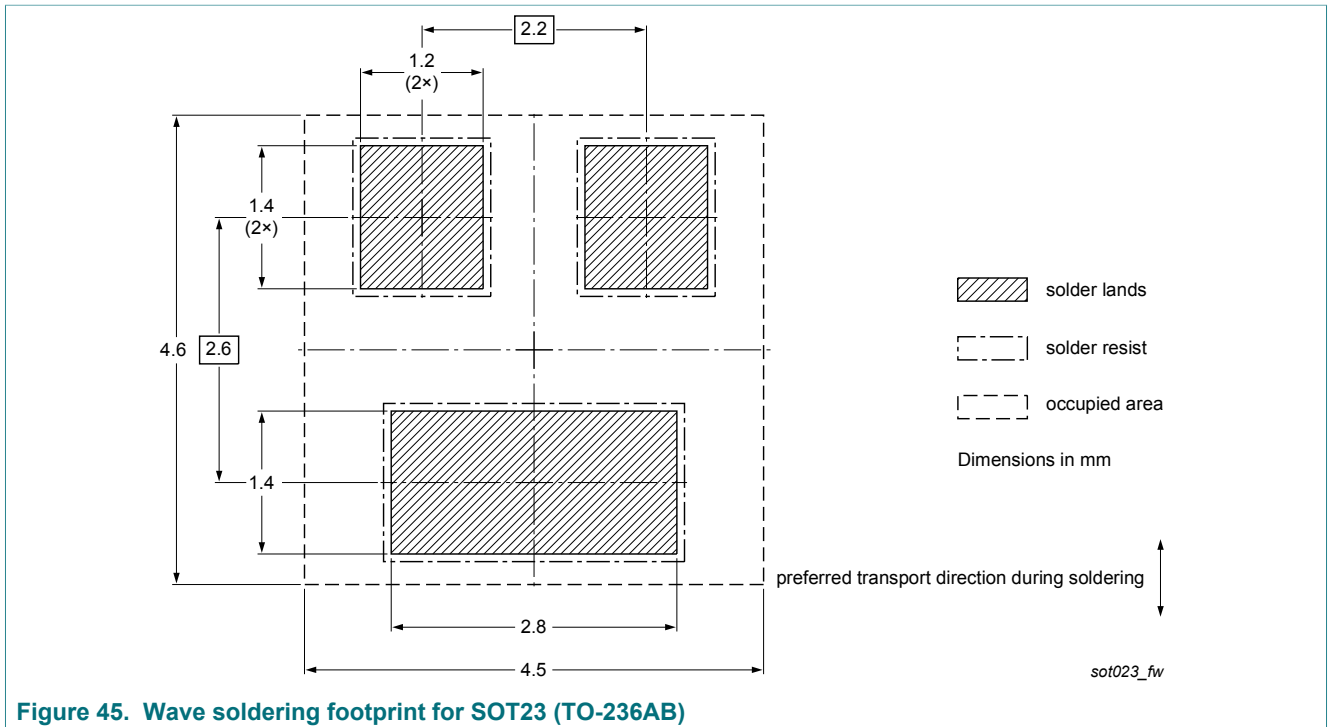


Figure 44. Reflow soldering footprint for SOT23 (TO-236AB)



## 11 Revision history

Table 11. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BC817KH_SER v.1	20171215	Product data sheet	-	-



## 12 Legal information

### 12.1 Data sheet status

Document status <sup>[1][2]</sup>	Product status <sup>[3]</sup>	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

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**Contents**

<b>1</b>	<b>Product profile</b> .....	<b>1</b>
1.1	General description .....	1
1.2	Features and benefits .....	1
1.3	Applications .....	1
1.4	Quick reference data .....	1
<b>2</b>	<b>Pinning information</b> .....	<b>2</b>
<b>3</b>	<b>Ordering information</b> .....	<b>2</b>
<b>4</b>	<b>Marking</b> .....	<b>2</b>
<b>5</b>	<b>Limiting values</b> .....	<b>3</b>
<b>6</b>	<b>Thermal characteristics</b> .....	<b>5</b>
<b>7</b>	<b>Characteristics</b> .....	<b>7</b>
<b>8</b>	<b>Test information</b> .....	<b>19</b>
8.1	Quality information .....	19
<b>9</b>	<b>Package outline</b> .....	<b>20</b>
<b>10</b>	<b>Soldering</b> .....	<b>20</b>
<b>11</b>	<b>Revision history</b> .....	<b>22</b>
<b>12</b>	<b>Legal information</b> .....	<b>23</b>

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Please be aware that important notices concerning this document and the product(s) described herein, have been included in section 'Legal information'.

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