

Dual General Purpose Transistors

NPN/PNP Duals

- We declare that the material of product compliance with RoHS requirements.
- S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

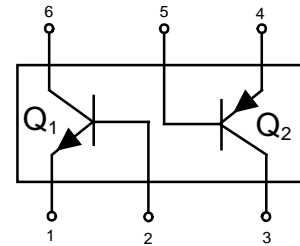
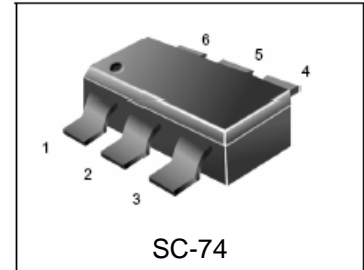
LBC817-16DPMT1G
LBC817-25DPMT1G
LBC817-40DPMT1G
S-LBC817-16DPMT1G
S-LBC817-25DPMT1G
S-LBC817-40DPMT1G

MAXIMUM RATING – NPN

Rating	Symbol	Value	Unit
Collector – Emitter Voltage	V_{CEO}	45	V
Collector – Base Voltage	V_{CBO}	50	V
Emitter – Base Voltage	V_{EBO}	5.0	V
Collector Current – Continuous	I_C	500	mAdc

MAXIMUM RATING – PNP

Rating	Symbol	Value	Unit
Collector – Emitter Voltage	V_{CEO}	-45	V
Collector – Base Voltage	V_{CBO}	-50	V
Emitter – Base Voltage	V_{EBO}	-5.0	V
Collector Current – Continuous	I_C	-500	mAdc



THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board, (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Total Device Dissipation Alumina Substrate, (Note 2) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	300 2.4	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Junction and Storage Temperature	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

ORDERING INFORMATION

DEVICE	MARKING	SHIPPING
LBC817-16DPMT1G S-LBC817-16DPMT1G	56A	3000/Tape & Reel
LBC817-16DPMT3G S-LBC817-16DPMT3G	56A	10,000/Tape & Reel
LBC817-25DPMT1G S-LBC817-25DPMT1G	56B	3000/Tape & Reel
LBC817-25DPMT3G S-LBC817-25DPMT3G	56B	10,000/Tape & Reel
LBC817-40DPMT1G S-LBC817-40DPMT1G	56C	3000/Tape & Reel
LBC817-40DPMT3G S-LBC817-40DPMT3G	56C	10,000/Tape & Reel

**LBC817-16DPMT1G LBC817-25DPMT1G LBC817-40DPMT1G
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ELECTRICAL CHARACTERISTICS(NPN) ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit	
OFF CHARACTERISTICS						
Collector – Emitter Breakdown Voltage ($I_C = 10\text{ mA}$)	$V_{(BR)CEO}$	45	–	–	V	
Collector – Emitter Breakdown Voltage ($V_{EB} = 0, I_C = 10\ \mu\text{A}$)	$V_{(BR)CES}$	50	–	–	V	
Emitter – Base Breakdown Voltage ($I_E = 1.0\ \mu\text{A}$)	$V_{(BR)EBO}$	5.0	–	–	V	
Collector Cutoff Current ($V_{CB} = 20\text{ V}$) ($V_{CB} = 20\text{ V}, T_A = 150^\circ\text{C}$)	I_{CBO}	–	–	100 5.0	nA μA	
ON CHARACTERISTICS						
DC Current Gain ($I_C = 100\text{ mA}, V_{CE} = 1.0\text{ V}$)	h_{FE}	BC817–16	100	–	250	–
		BC817–25	160	–	400	
		BC817–40	250	–	600	
($I_C = 500\text{ mA}, V_{CE} = 1.0\text{ V}$)			40	–	–	
Collector – Emitter Saturation Voltage ($I_C = 500\text{ mA}, I_B = 50\text{ mA}$)	$V_{CE(sat)}$	–	–	0.7	V	
Base – Emitter On Voltage ($I_C = 500\text{ mA}, V_{CE} = 1.0\text{ V}$)	$V_{BE(on)}$	–	–	1.2	V	
SMALL-SIGNAL CHARACTERISTICS						
Current – Gain – Bandwidth Product ($I_C = 10\text{ mA}, V_{CE} = 5.0\text{ Vdc}, f = 100\text{ MHz}$)	f_T	100	–	–	MHz	
Output Capacitance ($V_{CB} = 10\text{ V}, f = 1.0\text{ MHz}$)	C_{obo}	–	10	–	pF	

ELECTRICAL CHARACTERISTICS(PNP) ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit	
OFF CHARACTERISTICS						
Collector – Emitter Breakdown Voltage ($I_C = -10\text{ mA}$)	$V_{(BR)CEO}$	-45	–	–	V	
Collector – Emitter Breakdown Voltage ($V_{EB} = 0, I_C = -10\ \mu\text{A}$)	$V_{(BR)CES}$	-50	–	–	V	
Emitter – Base Breakdown Voltage ($I_E = -1.0\ \mu\text{A}$)	$V_{(BR)EBO}$	-5.0	–	–	V	
Collector Cutoff Current ($V_{CB} = -20\text{ V}$) ($V_{CB} = -20\text{ V}, T_J = 150^\circ\text{C}$)	I_{CBO}	–	–	-100 -5.0	nA μA	
ON CHARACTERISTICS						
DC Current Gain ($I_C = -100\text{ mA}, V_{CE} = -1.0\text{ V}$)	h_{FE}	BC807–16	100	–	250	–
		BC807–25	160	–	400	
		BC807–40	250	–	600	
($I_C = -500\text{ mA}, V_{CE} = -1.0\text{ V}$)			40	–	–	
Collector – Emitter Saturation Voltage ($I_C = -500\text{ mA}, I_B = -50\text{ mA}$)	$V_{CE(sat)}$	–	–	-0.7	V	
Base – Emitter On Voltage ($I_C = -500\text{ mA}, I_B = -1.0\text{ V}$)	$V_{BE(on)}$	–	–	-1.2	V	
SMALL-SIGNAL CHARACTERISTICS						
Current – Gain – Bandwidth Product ($I_C = -10\text{ mA}, V_{CE} = -5.0\text{ Vdc}, f = 100\text{ MHz}$)	f_T	100	–	–	MHz	
Output Capacitance ($V_{CB} = -10\text{ V}, f = 1.0\text{ MHz}$)	C_{obo}	–	10	–	pF	

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TYPICAL NPN CHARACTERISTICS

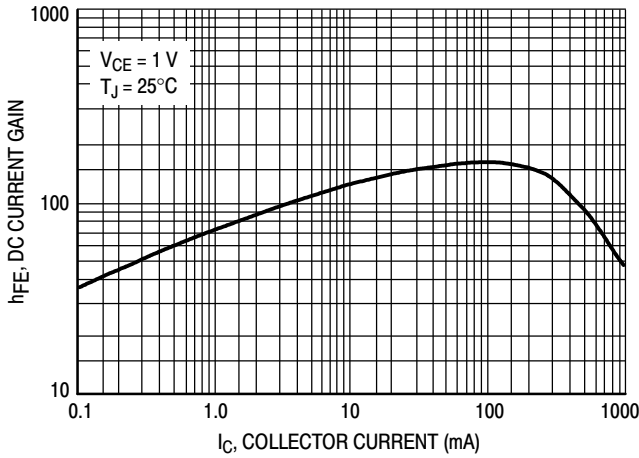


Figure 1. DC Current Gain

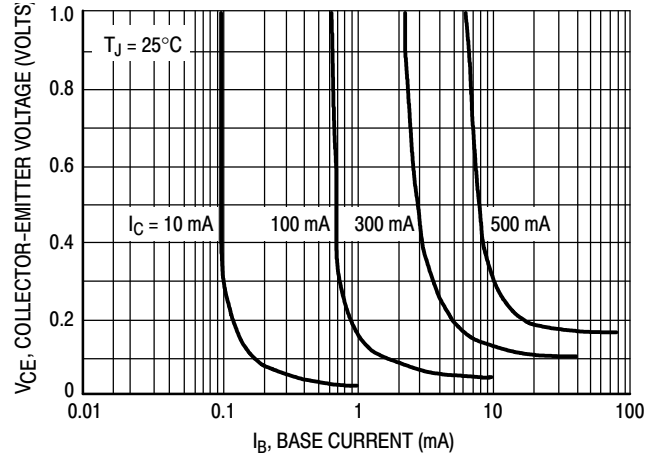


Figure 2. Saturation Region

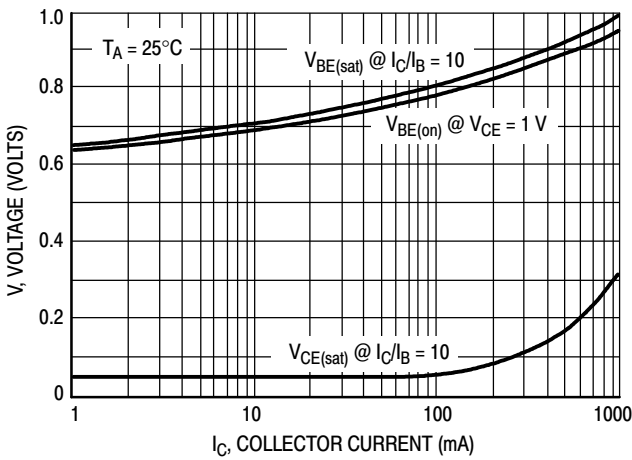


Figure 3. "On" Voltages

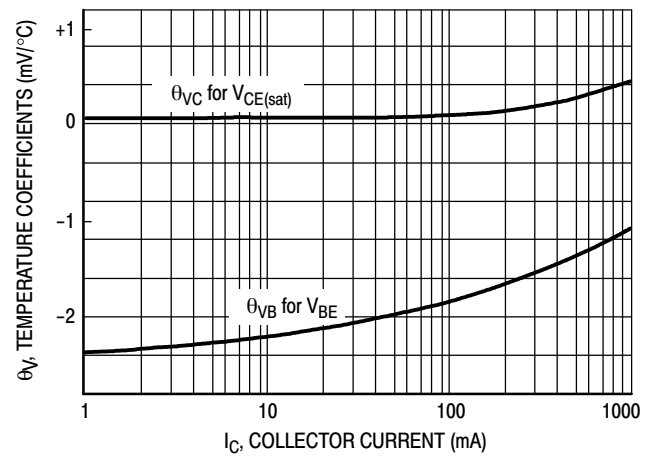


Figure 4. Temperature Coefficients

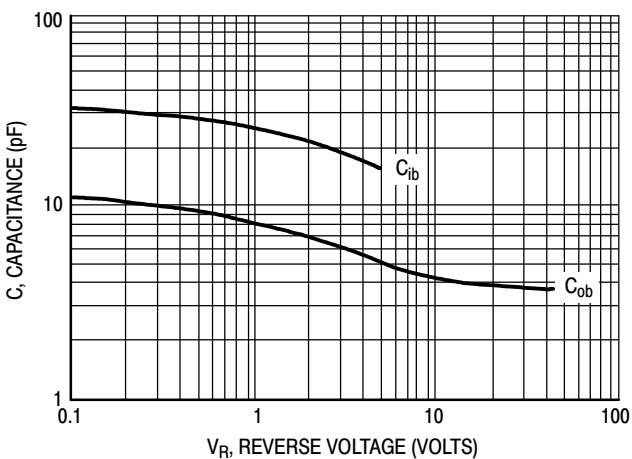


Figure 5. Capacitances

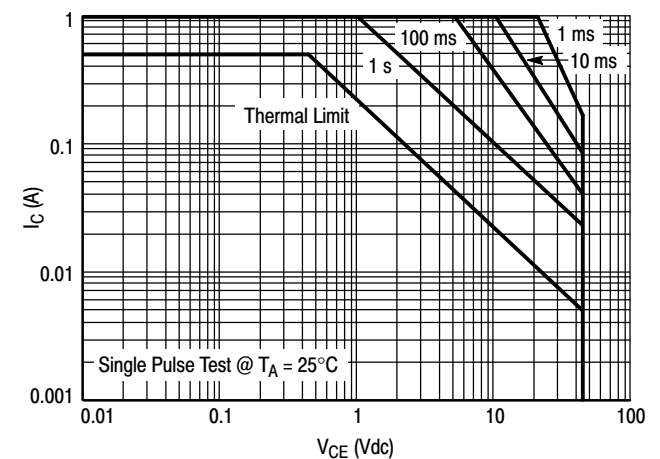


Figure 6. BC817-40L Safe Operating Area

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TYPICAL PNP CHARACTERISTICS

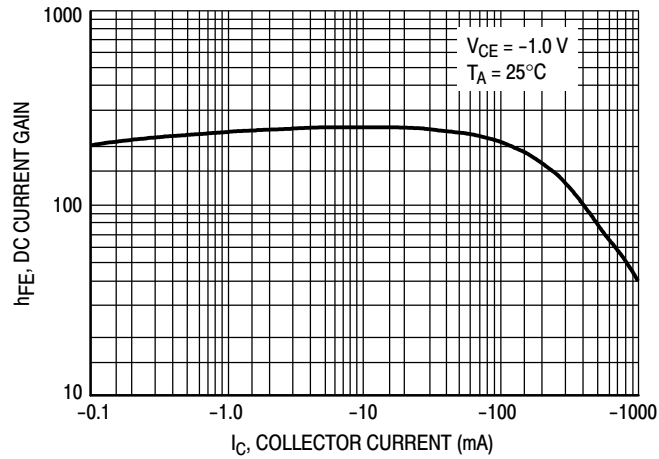


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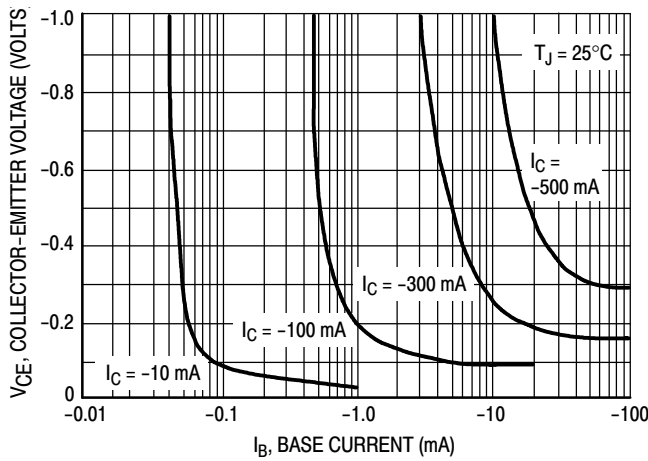


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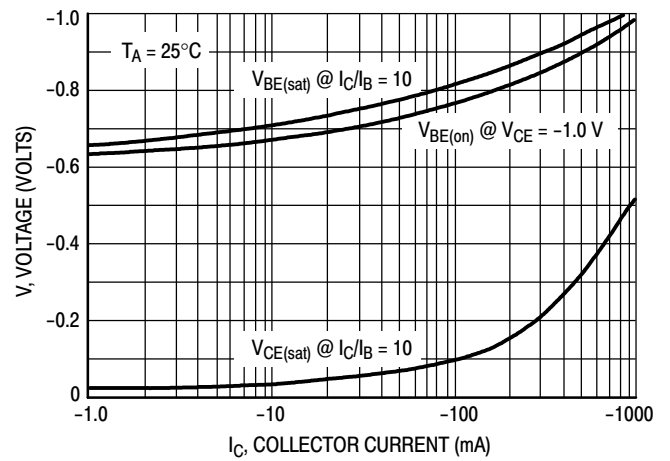


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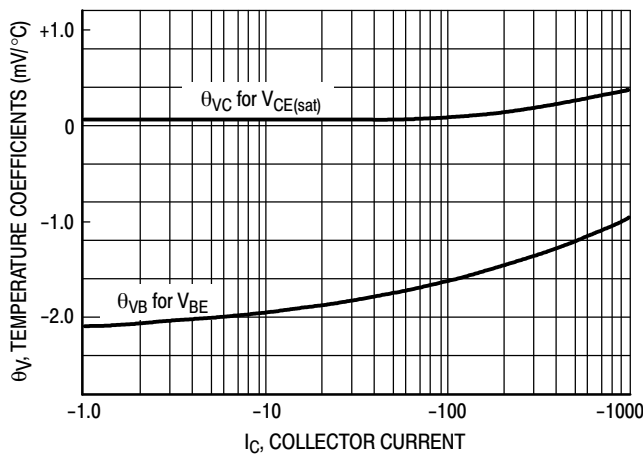


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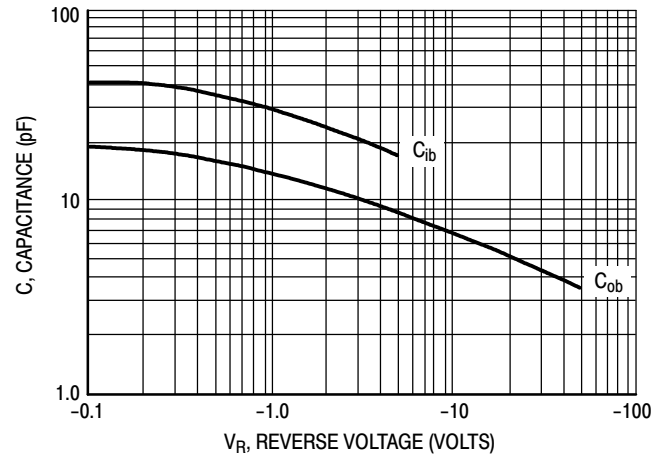
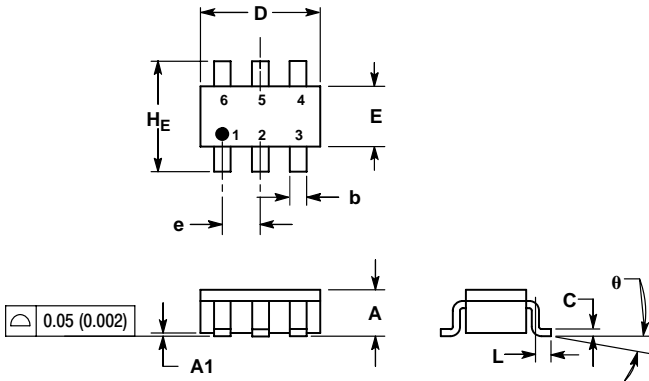


Figure 5. Capacitances

LBC817-16DPMT1G LBC817-25DPMT1G LBC817-40DPMT1G
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SC-74



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.90	1.00	1.10	0.035	0.039	0.043
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.25	0.37	0.50	0.010	0.015	0.020
c	0.10	0.18	0.26	0.004	0.007	0.010
D	2.90	3.00	3.10	0.114	0.118	0.122
E	1.30	1.50	1.70	0.051	0.059	0.067
e	0.85	0.95	1.05	0.034	0.037	0.041
L	0.20	0.40	0.60	0.008	0.016	0.024
HE	2.50	2.75	3.00	0.099	0.108	0.118
theta	0°	-	10°	0°	-	10°

