

# 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.

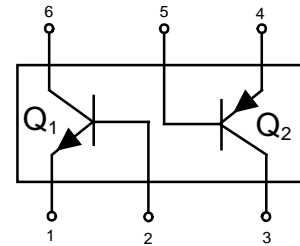
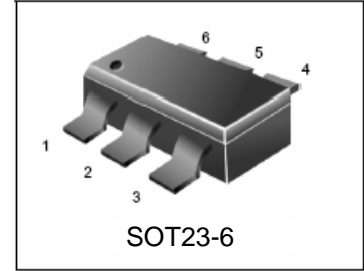
**LBC817-16DPMT1G**  
**LBC817-25DPMT1G**  
**LBC817-40DPMT1G**  
**S-LBC817-16DPMT1G**  
**S-LBC817-25DPMT1G**  
**S-LBC817-40DPMT1G**

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

1. FR-5 = 1.0 x 0.75 x 0.062 in.
2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

### 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  
S-LBC817-16DPMT1G S-LBC817-25DPMT1G S-LBC817-40DPMT1G**

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

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
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 $\mu\text{A}$
<b>ON CHARACTERISTICS</b>					
DC Current Gain ( $I_C = 100\text{ mA}, V_{CE} = 1.0\text{ V}$ )	$h_{FE}$	100	–	250	–
		160	–	400	
		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
<b>SMALL-SIGNAL CHARACTERISTICS</b>					
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
<b>OFF CHARACTERISTICS</b>					
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 $\mu\text{A}$
<b>ON CHARACTERISTICS</b>					
DC Current Gain ( $I_C = -100\text{ mA}, V_{CE} = -1.0\text{ V}$ )	$h_{FE}$	100	–	250	–
		160	–	400	
		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
<b>SMALL-SIGNAL CHARACTERISTICS</b>					
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

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

TYPICAL NPN CHARACTERISTICS

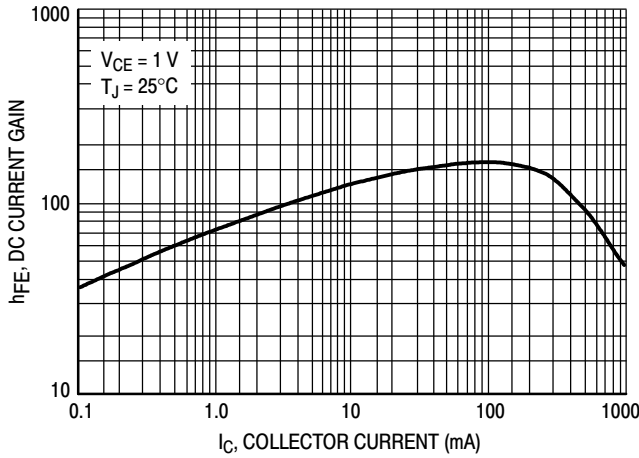


Figure 1. DC Current Gain

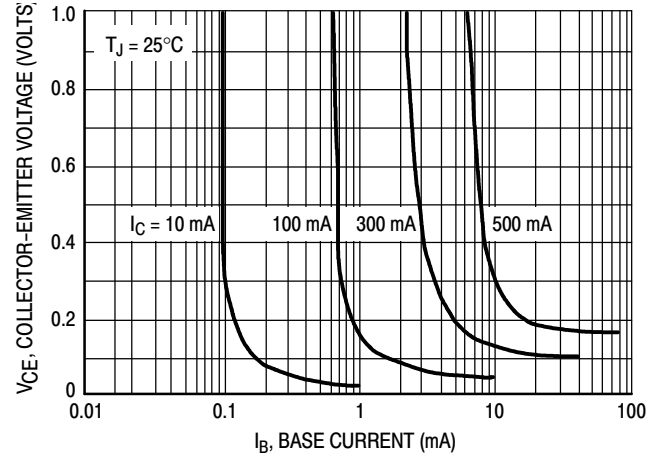


Figure 2. Saturation Region

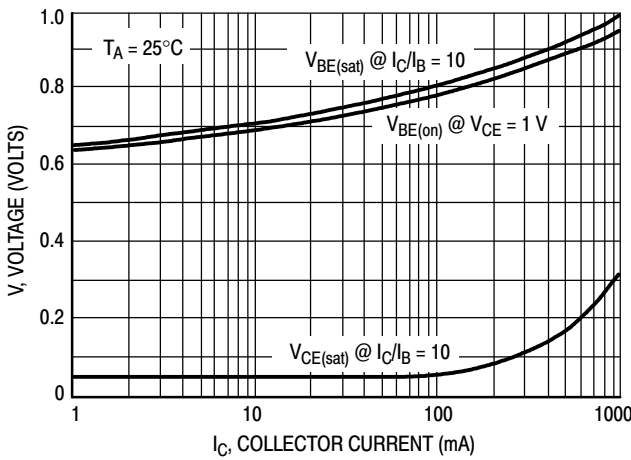


Figure 3. "On" Voltages

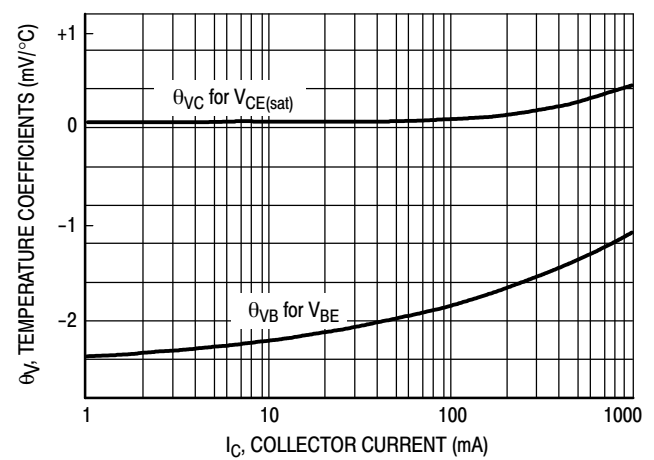


Figure 4. Temperature Coefficients

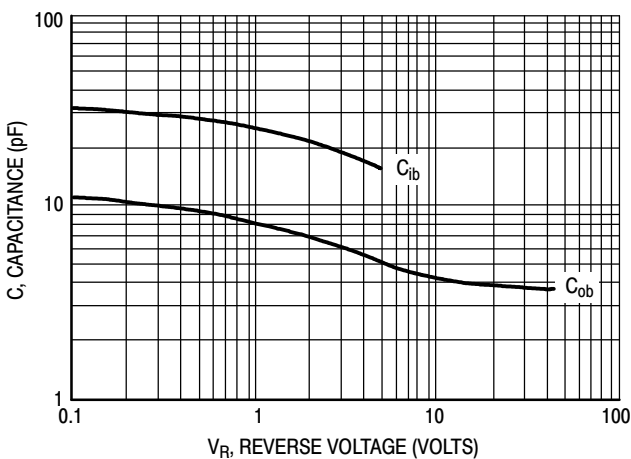


Figure 5. Capacitances

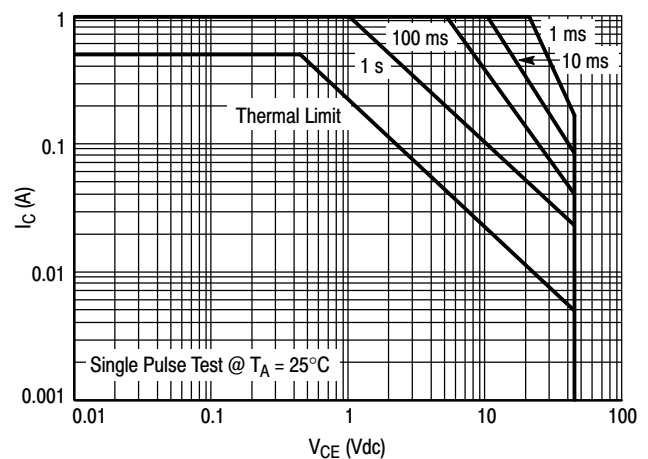


Figure 6. BC817-40L Safe Operating Area

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

TYPICAL PNP CHARACTERISTICS

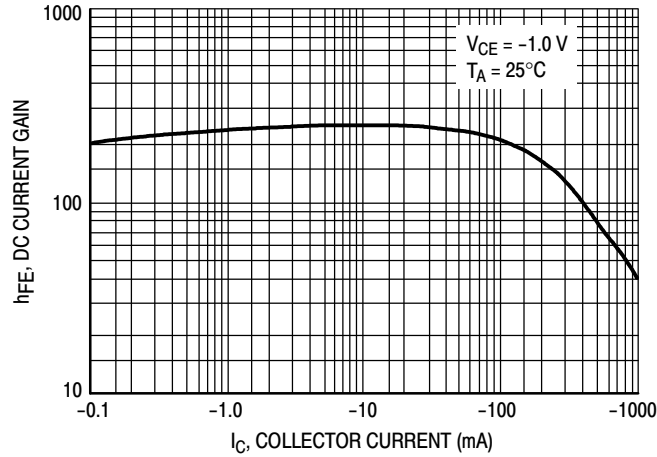


Figure 1. DC Current Gain

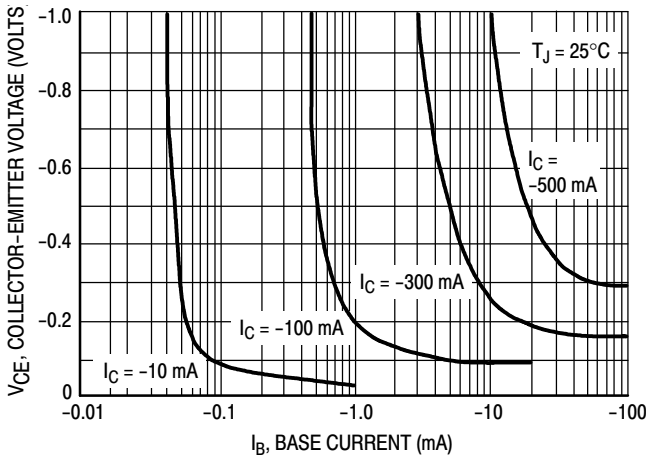


Figure 2. Saturation Region

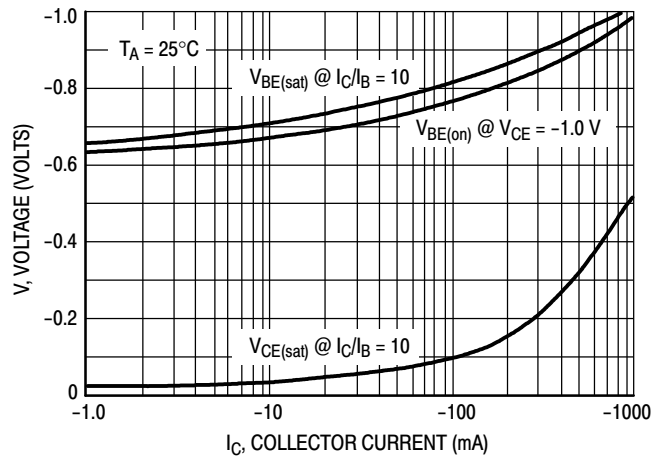


Figure 3. "On" Voltages

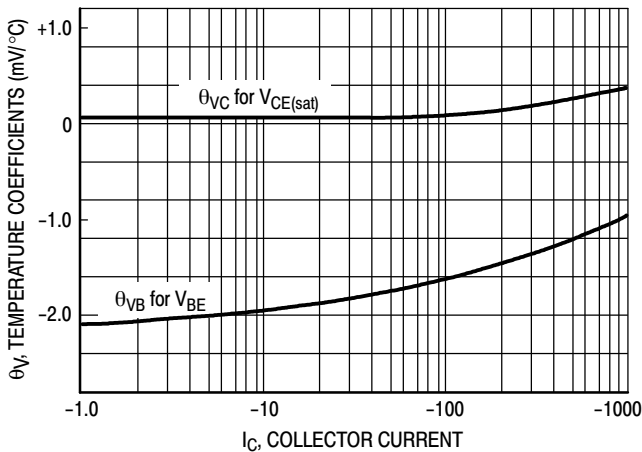


Figure 4. Temperature Coefficients

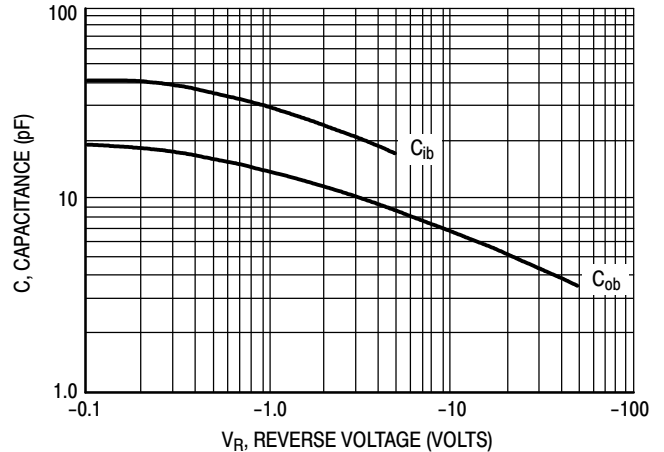
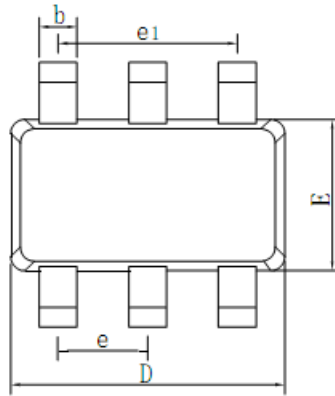
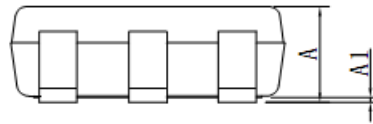
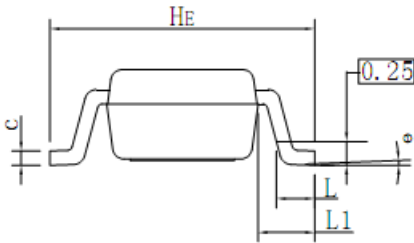


Figure 5. Capacitances

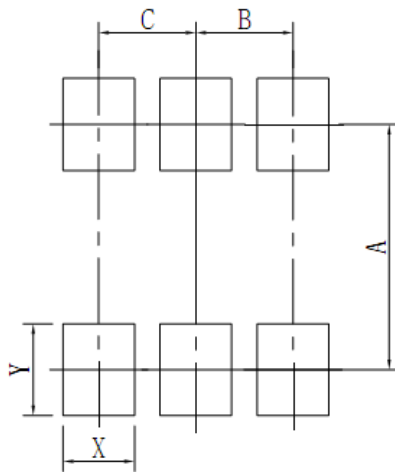
**OUTLINE AND DIMENSIONS**

SOT23-6



SOT23-6			
DIM	MIN	NOR	MAX
A	0.90	1.00	1.10
A1	0.01	0.06	0.10
b	0.25	0.40	0.50
c	0.10	0.17	0.26
D	2.80	2.90	3.10
E	1.30	1.60	1.70
e	0.85	0.95	1.05
e1	1.80	1.90	2.00
L	0.20	0.40	0.60
L1	0.60REF		
HE	2.50	2.80	3.00
θ	0°	-	10°

**SOLDERING FOOTPRINT**



SOT23-6	
DIM	(mm)
X	0.70
Y	0.90
A	2.40
B	0.95
C	0.95

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Bipolar Transistors - BJT category](#):*

*Click to view products by [Leshan manufacturer](#):*

Other Similar products are found below :

[619691C](#) [MCH4017-TL-H](#) [MMBT-2369-TR](#) [BC546/116](#) [BC557/116](#) [BSW67A](#) [NJVMJD148T4G](#) [NTE123AP-10](#) [NTE153MCP](#) [NTE16](#)  
[NTE195A](#) [NTE92](#) [2N4401-A](#) [2N6728](#) [2SA1419T-TD-H](#) [2SA2126-E](#) [2SB1204S-TL-E](#) [2SC2712S-GR,LF](#) [SP000011176](#) [2N2907A](#) [2N3904-](#)  
[NS](#) [2N5769](#) [2SC2412KT146S](#) [CPH6501-TL-E](#) [MCH4021-TL-E](#) [MJE340](#) [Jantx2N5416](#) [US6T6TR](#) [NJL0281DG](#) [732314D](#) [CPH3121-TL-E](#)  
[CPH6021-TL-H](#) [873787E](#) [IMZ2AT108](#) [MMST8098T146](#) [UMX21NTR](#) [MCH6102-TL-E](#) [NJL0302DG](#) [30A02MH-TL-E](#) [NTE13](#) [NTE26](#)  
[NTE282](#) [NTE323](#) [NTE350](#) [NTE81](#) [STX83003-AP](#) [JANTX2N2920L](#) [JANSR2N2222AUB](#) [CMLT3946EG TR](#) [2SA1371D-AE](#)