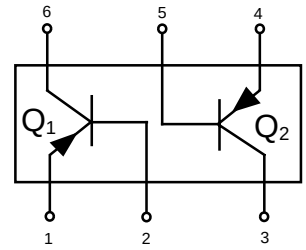
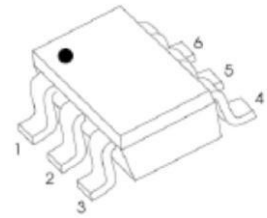
LBC857BDW1T1G

Dual General Purpose Transistors PNP Duals



These transistors are designed for general purpose amplifier applications. They are housed in the SOT–363 which is designed for low power surface mount applications.

MARKING:3F



SOT–363

MAXIMUM RATINGS

Rating	Symbol		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	–100	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation	P_D	380	mW
Per Device		250	mW
FR– 5 Board, (1) T_A = 25°C			
Derate above 25°C		3.0	mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	328	°C/W
Junction and Storage Temperature	T_J , T_{stg}	–55 to +150	°C

1. FR–5 = 1.0 x 0.75 x 0.062 in.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector–Emitter Breakdown Voltage (I_C = –10 mA)		$V_{(BR)CEO}$	–45	—	—	V
Collector–Emitter Breakdown Voltage (I_C = –10 µA, V_{EB} = 0)		$V_{(BR)CES}$	–50	—	—	V
Collector–Base Breakdown Voltage (I_C = –10 µA)		$V_{(BR)CBO}$	–50	—	—	V
Emitter–Base Breakdown Voltage (I_E = –1.0 µA)		$V_{(BR)EBO}$	–5.0	—	—	V
Collector Cutoff Current	(V_{CB} = –30 V)	I_{CBO}	—	—	–15	nA
	(V_{CB} = –30 V, T_A = 150°C)		—	—	–4.0	µA

ON CHARACTERISTICS

DC Current Gain	h_{FE}				—
(I_C = –10 μA, V_{CE} = –5.0 V)		—	150	—	
(I_C = –2.0 mA, V_{CE} =– 5.0 V)		220	290	475	
Collector–Emitter Saturation Voltage (I_C = -10 mA, I_B = -0.5 mA)	$V_{CE(sat)}$	—	—	–0.3	V
(I_C = -100 mA, I_B = -5.0 mA)		—	—	–0.65	
Base–Emitter Saturation Voltage (I_C = –10 mA, I_B = –0.5 mA)	$V_{BE(sat)}$	—	–0.7	—	V
(I_C = –100 mA, I_B = –5.0 mA)		—	–0.9	—	
Base–Emitter Voltage (I_C = –2.0 mA, V_{CE} = –5.0 V)	$V_{BE(on)}$	–0.5	—	–0.75	V
(I_C = –10 mA, V_{CE} = –5.0 V)		—	—	–0.82	

SMALL–SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product	f_T	100	—	—	MHz
(I_C = –10 mA, V_{CE} = –5.0 Vdc, f = 100 MHz)					
Output Capacitance (V_{CB} = –10 V, f = 1.0 MHz)	C_{obo}	—	—	4.5	pF
Noise Figure (I_C = –0.2 mA,	NF				dB
V_{CE} = –5.0 V_{dc}, R_S = 2.0 kΩ, f = 1.0 kHz, BW = 200 Hz)		—	—	10	

TYPICAL PNP CHARACTERISTICS

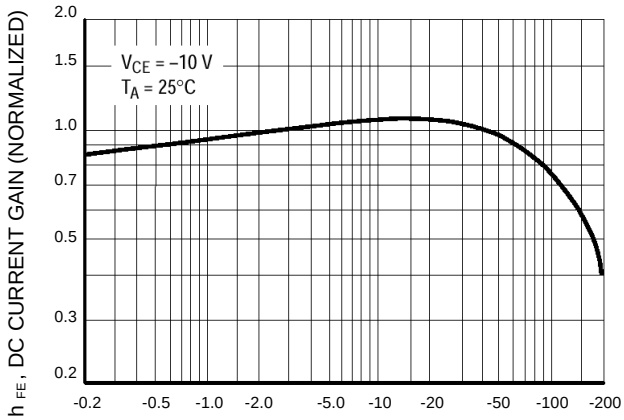


Figure 1. Normalized DC Current Gain

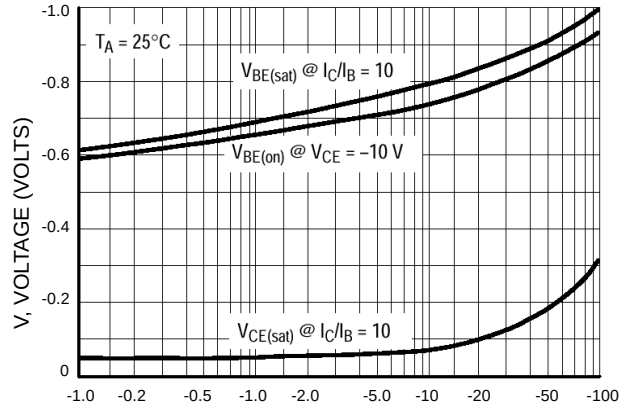


Figure 2. “Saturation” and “On” Voltages

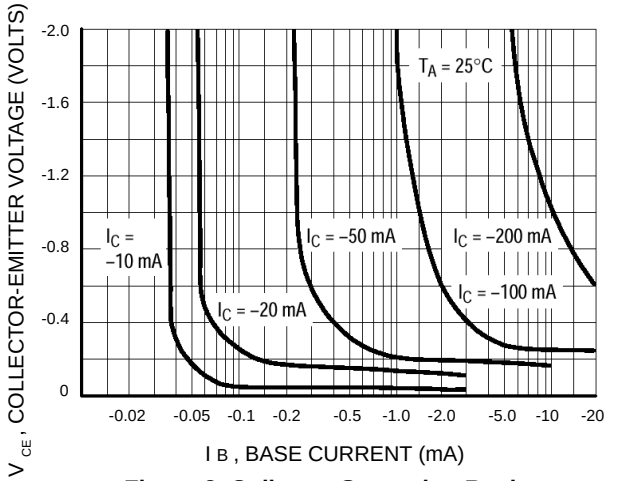


Figure 3. Collector Saturation Region

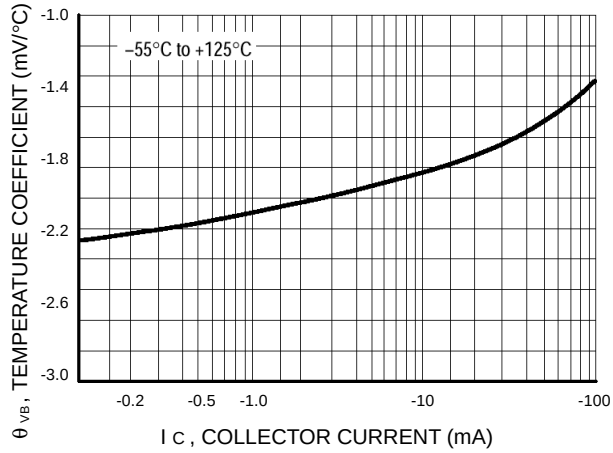


Figure 4. Base–Emitter Temperature Coefficient

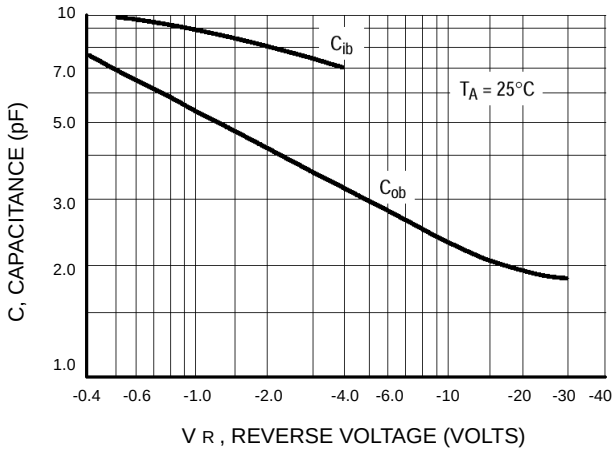


Figure 5. Capacitance

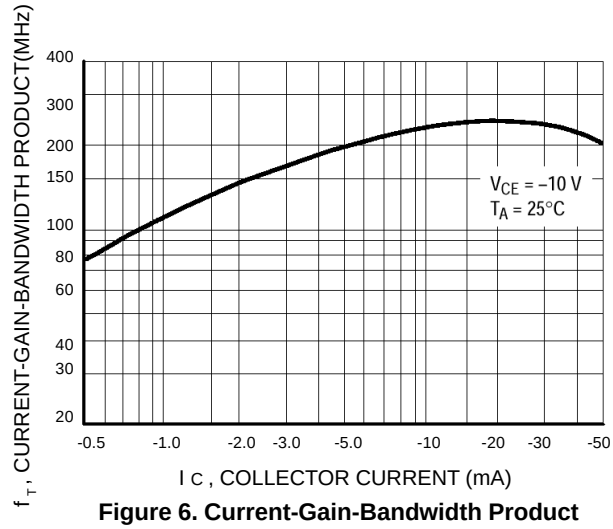


Figure 6. Current-Gain-Bandwidth Product

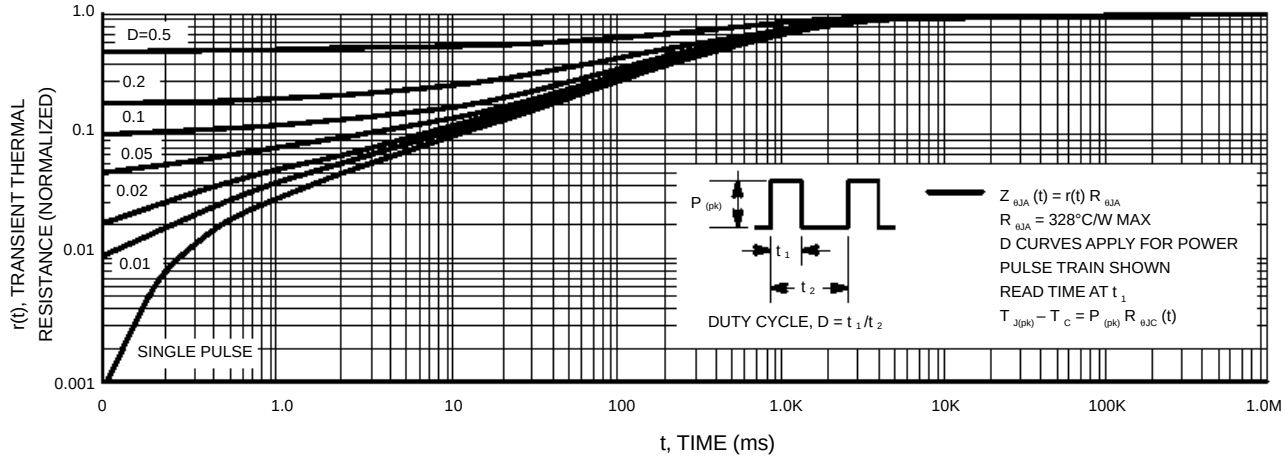


Figure 7. Thermal Response

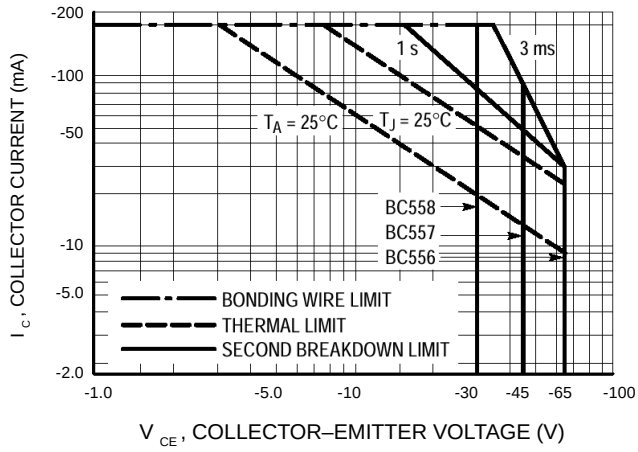
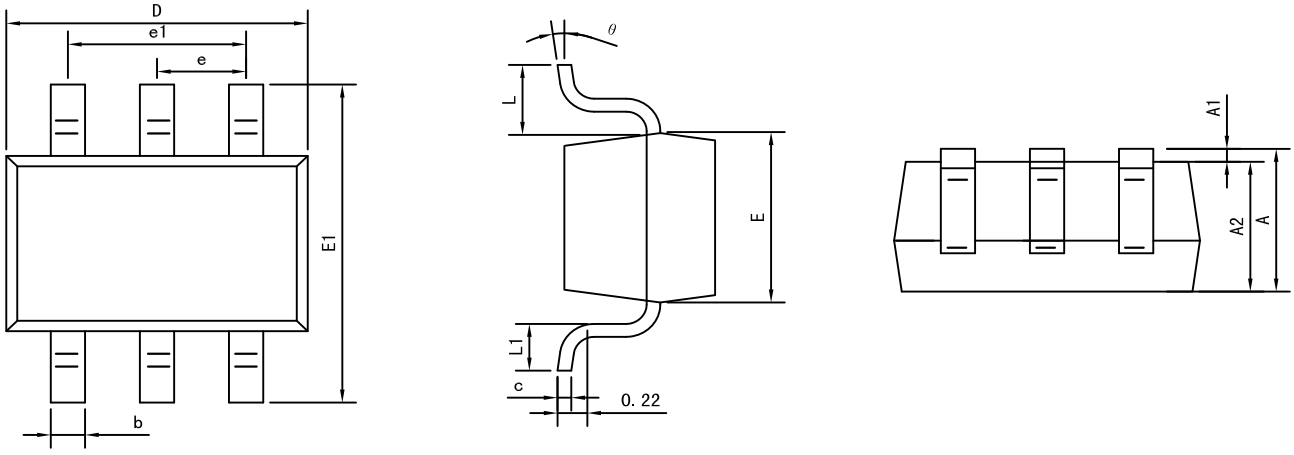


Figure 8. Active Region Safe Operating Area

The safe operating area curves indicate I_C–V_{CE} limits of thetransistor that must be observed for reliable operation. Collector load lines for specific circuits must fall below the limits indicated by the applicable curve.

The data of Figure 14 is based upon $T_{J(pk)}$ = 150°C; T_C or T_A is variable depending upon conditions. Pulse curves are valid for duty cycles to 10% provided $T_{J(pk)} \leq$ 150°C. T_J (pk) may be calculated from the data in Figure 13. At high case or ambient temperatures, thermal limitations will reduce the power that can be handled to values less than the limitations imposed by the secondary breakdown.

SOT-363 Package outline dimensions



Symbol	Dimension in Millimeters	
	Min	**Max**
A	0.900	1.100
A1	0.000	0.100
A2	0.900	1.000
b	0.150	0.350
c	0.080	0.150
D	2.000	2.200
E	1.150	1.350
E1	2.150	2.450
e	0.650 TYP	
e1	1.200	1.400
L	0.525 REF	
L1	0.260	0.460
θ	0°	8°