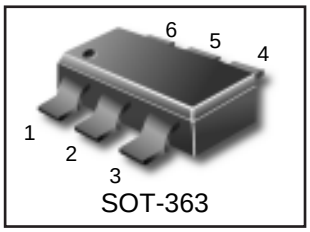
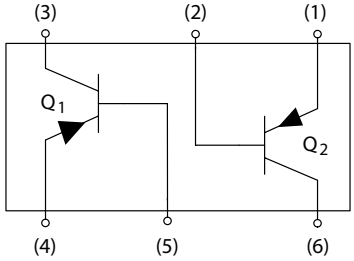
LMBT3906DW1T1



The LMBT3906DW1T1 device isa spin–off of our popular SOT–23/SOT–323 three–leaded device. It is designed for general purpose amplifier applications and is housed in the SOT–363 six–leaded surface mount package. By putting two discrete devices in one package, this device is ideal for low–power surface mount applications where board space is at a premium.

- h_{FE}, 100–300
- Low $V_{CE(sat)}$, ≤ 0.4 V
- Simplifies Circuit Design
- Reduces Board Space
- Reduces Component Count
- Available in 8 mm, 7–inch/3,000 Unit Tape and Reel
- Device Marking: LMBT3906DW1T1 = A2



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CEO}	–40	Vdc
Collector–Base Voltage	V_{CBO}	–40	Vdc
Emitter–Base Voltage	V_{EBO}	–5.0	Vdc
Collector Current – Continuous	I_C	–200	mAdc
Electrostatic Discharge	ESD	HBM>16000, MM>2000	V

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Package Dissipation(1) T_A = 25°C	P_D	150	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	833	°C/W
Junction and Storage Temperature Range	T_J, T_{stg}	–55 to +150	°C

1. Device mounted on FR4 glass epoxy printed circuit board using the minimum recommended footprint.

ORDERING INFORMATION

Device	Package	Shipping
LMBT3906DW1T1	SOT–363	3000 Units/Reel

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector–Emitter Breakdown Voltage(2)	$V_{(BR)CEO}$	–40	–	Vdc
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	–40	–	Vdc
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	–5.0	–	Vdc
Base Cutoff Current	I_{BL}	–	–50	nAdc
Collector Cutoff Current	I_{CEX}	–	–50	nAdc
ON CHARACTERISTICS (2)				
DC Current Gain (I_C = –0.1 mAdc, V_{CE} = –1.0 Vdc) (I_C = –1.0 mAdc, V_{CE} = –1.0 Vdc) (I_C = –10 mAdc, V_{CE} = –1.0 Vdc) (I_C = –50 mAdc, V_{CE} = –1.0 Vdc) (I_C = –100 mAdc, V_{CE} = –1.0 Vdc)	h_{FE}	 60 80 100 60 30	 – – 300 – –	–
Collector–Emitter Saturation Voltage (I_C = –10 mAdc, I_B = –1.0 mAdc) (I_C = –50 mAdc, I_B = –5.0 mAdc)	$V_{CE(sat)}$	 – –	 –0.25 –0.4	Vdc
Base–Emitter Saturation Voltage (I_C = –10 mAdc, I_B = –1.0 mAdc) (I_C = –50 mAdc, I_B = –5.0 mAdc)	$V_{BE(sat)}$	 –0.65 –	 –0.85 –0.95	Vdc
SMALL–SIGNAL CHARACTERISTICS				
Current–Gain – Bandwidth Product	f_T	250	–	MHz
Output Capacitance	C_{obo}	–	4.5	pF
Input Capacitance	C_{ibo}	–	10.0	pF

2. Pulse Test: Pulse Width ≤ 300 μs; Duty Cycle ≤2.0%.

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

Characteristic	Symbol	Min	Max	Unit
Input Impedance (V_{CE} = –10 Vdc, I_C = –1.0 mAdc, f = 1.0 kHz)	h_{ie}	2.0	12	k Ω
Voltage Feedback Ratio (V_{CE} = –10 Vdc, I_C = –1.0 mAdc, f = 1.0 kHz)	h_{re}	0.1	10	X 10^{-4}
Small–Signal Current Gain (V_{CE} = –10 Vdc, I_C = –1.0 mAdc, f = 1.0 kHz)	h_{fe}	100	400	–
Output Admittance (V_{CE} = –10 Vdc, I_C = –1.0 mAdc, f = 1.0 kHz)	h_{oe}	3.0	60	μmhos
Noise Figure (V_{CE} = –5.0 Vdc, I_C = –100 μAdc, R_S = 1.0 k Ω, f = 1.0 kHz)	NF	–	4.0	dB
SWITCHING CHARACTERISTICS				
Delay Time (V_{CC} = –3.0 Vdc, V_{BE} = 0.5 Vdc)	t_d	–	35	ns
Rise Time (I_C = –10 mAdc, I_{B1} = –1.0 mAdc)	t_r	–	35	
Storage Time (V_{CC} = –3.0 Vdc, I_C = –10 mAdc)	t_s	–	225	ns
Fall Time (I_{B1} = I_{B2} = –1.0 mAdc)	t_f	–	75	