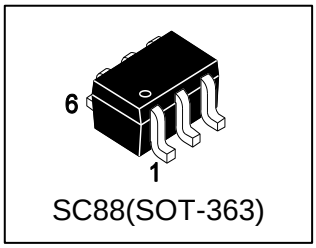
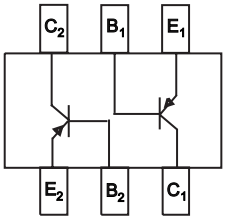
LMBT5401DW1T1G
S-LMBT5401DW1T1G

DUAL PNP SMALL SIGNAL SURFACE MOUNT TRANSISTOR



SC88(SOT-363)



1. FEATURES

- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.

2. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LMBT5401DW1T1G	2L	3000/Tape&Reel
LMBT5401DW1T3G	2L	10000/Tape&Reel

3. MAXIMUM RATINGS(Ta = 25ºC)

Parameter	Symbol	Limits	Unit
Collector-Emitter Voltage	VCEO	-150	V
Collector-Base voltage	VCBO	-160	V
Emitter-Base Voltage	VEBO	-5	V
Collector current — Continuous	IC	-500	mA

4. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation, FR−5 Board (Note 1) @ TA = 25ºC Derate above 25ºC	PD	 225 1.8	 mW mW/℃
Thermal Resistance, Junction–to–Ambient	RΘJA	556	℃/W
Total Device Dissipation, Alumina Substrate, (Note 2)@ TA = 25ºC Derate above 25ºC	PD	 300 2.4	 mW mW/℃
Thermal Resistance, Junction–to–Ambient	RΘJA	417	℃/W
Junction and Storage temperature	TJ,Tstg	−55~+150	℃

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

5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Collector-Emitter Breakdown Voltage (IC =-1.0mA,IB=0)	V(BR)CEO	-150	-	-	V
Collector-Base Breakdown voltage (IC = -100μA,IE=0)	V(BR)CBO	-160	-	-	V
Emitter-Base Breakdown Voltage (IE = -10μA,IC=0)	V(BR)EBO	-5	-	-	V
Collector Cutoff Current (VCB = -120 V,IE=0) (VCB = -120 V,IE=0,TA=100℃)	ICBO	- -	- -	-50 -50	nA μA

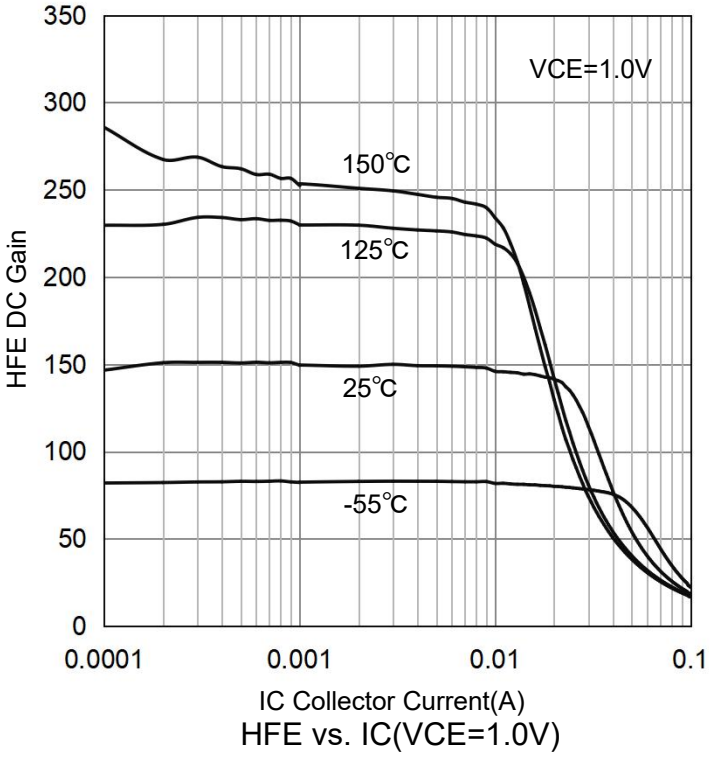
ON CHARACTERISTICS

DC Current Gain (IC = –1.0mA, VCE = –5.0 V) (IC = –10 mA, VCE = –5.0 V) (IC = –50 mA, VCE = –5.0 V)	HFE	 50 60 50	 - - -	 - 240 -	
Collector-Emitter Saturation Voltage (IC = –10 mA, IB = –1.0 mA) (IC = –50 mA, IB = –5.0 mA)	VCE(S)	 - -	 - -	 -0.2 -0.5	V
Base–Emitter Saturation Voltage (IC = –10 mA, IB = –1.0 mA) (IC = –50 mA, IB = –5.0 mA)	VBE(S)	 - -	 - -	 -1 -1	V

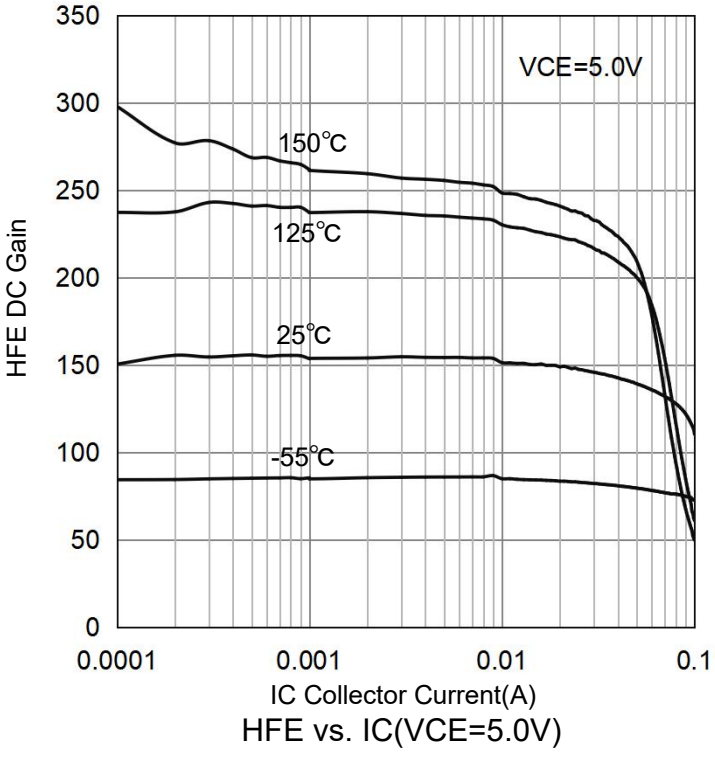
SMALL–SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product (IC = –10 mA, VCE = –10 V, f = 100 MHz)	fT	100	-	300	MHz
Output Capacitance (VCB = –10 V, IE = 0, f = 1.0 MHz)	Cobo	-	-	6	PF
Small–Signal Current Gain (IC = –1.0mA, VCE = –10V, f = 1.0 kHz)	hfe	40	-	200	
Noise Figure (IC =–200 μA,VCE= –5.0 V,Rs=10Ω, f=1.0 kHz)	NF	-	-	8	dB

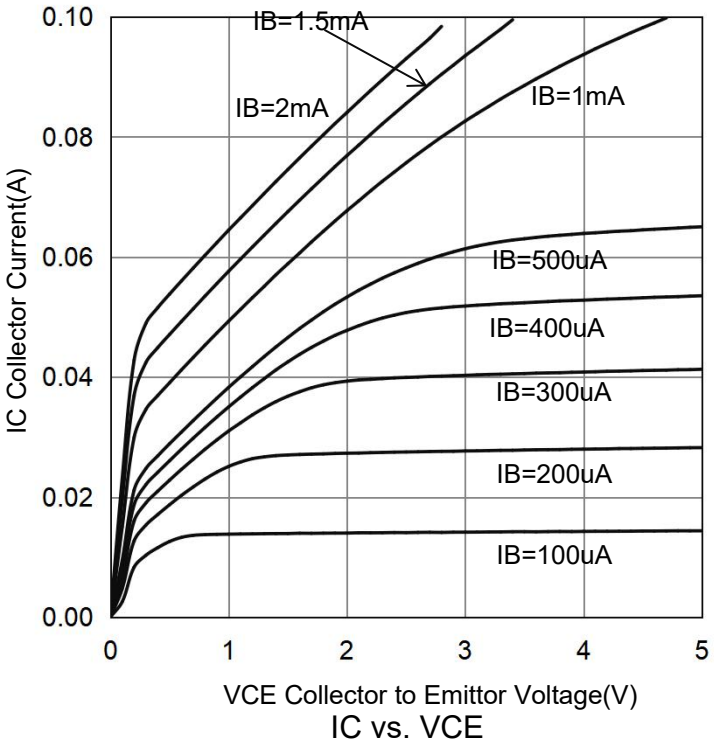
6.ELECTRICAL CHARACTERISTICS CURVES



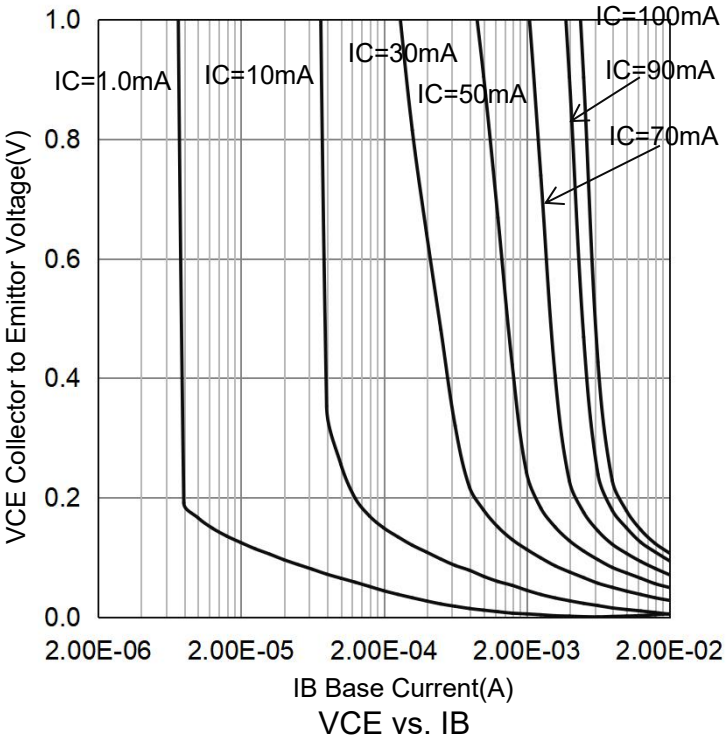
HFE vs. IC(VCE=1.0V)



HFE vs. IC(VCE=5.0V)

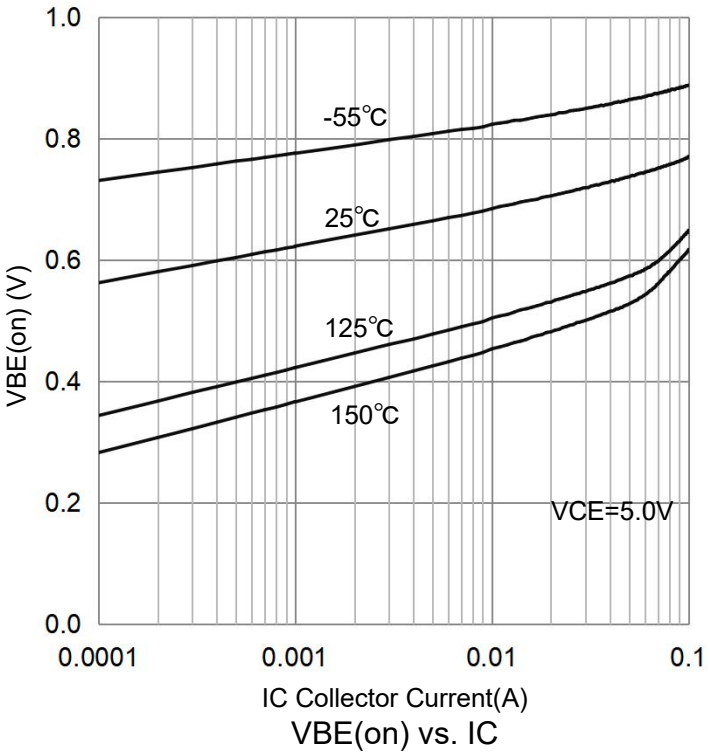


IC vs. VCE

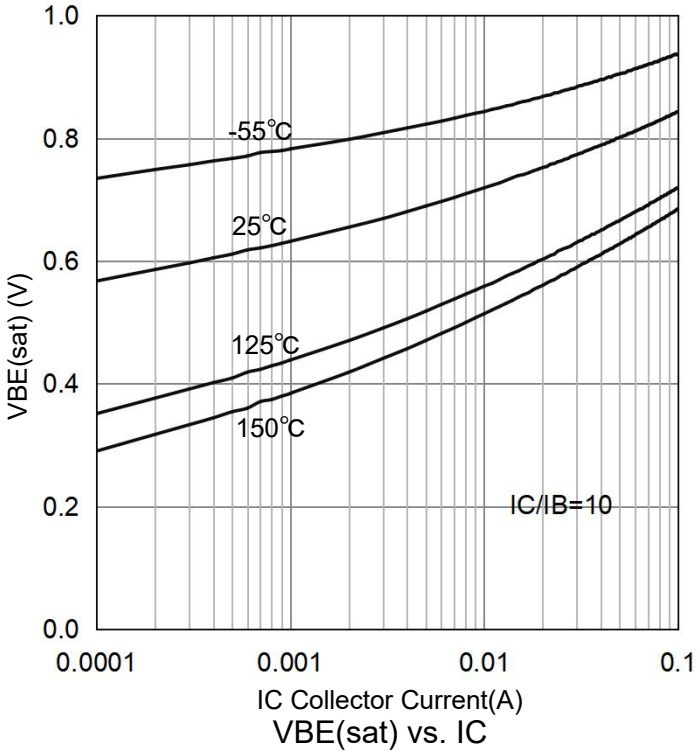


VCE vs. IB

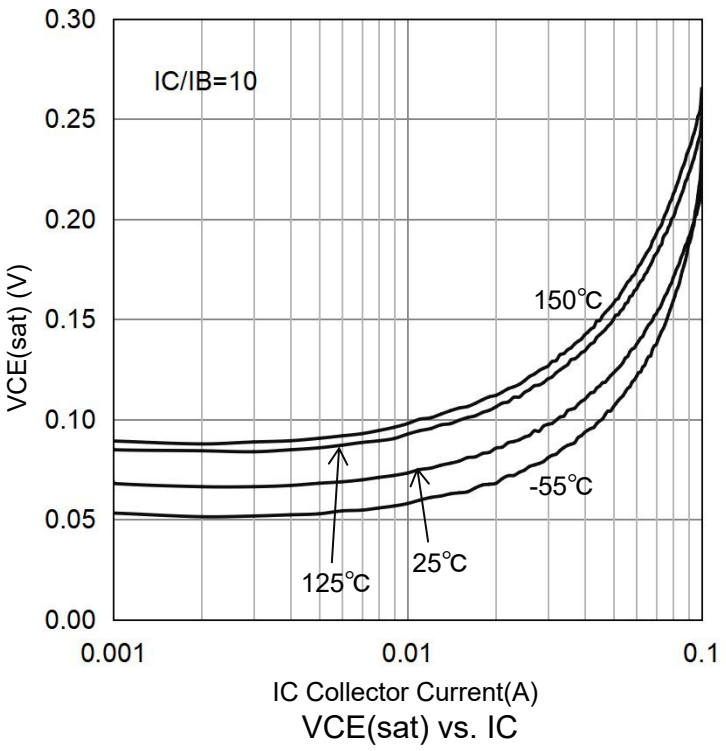
6.ELECTRICAL CHARACTERISTICS CURVES(Con.)



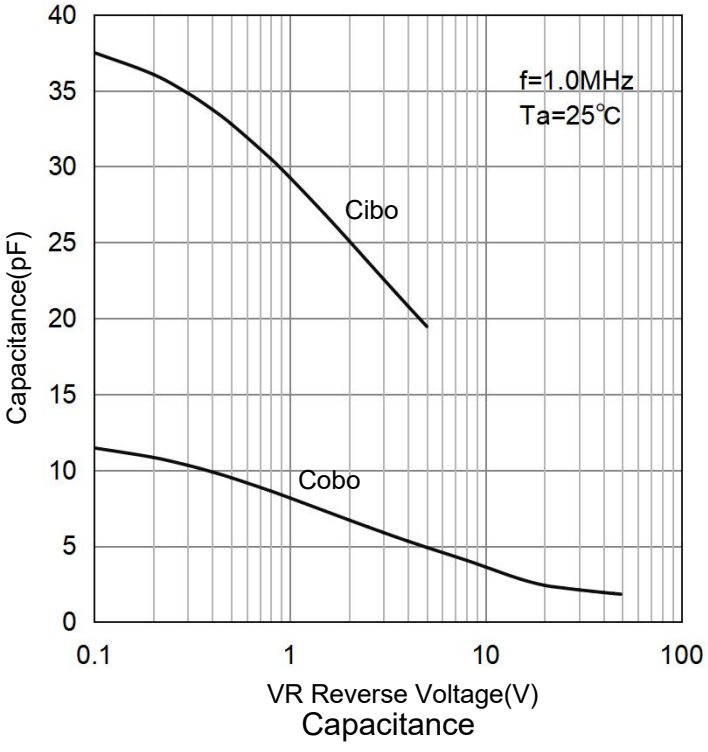
VBE(on) vs. IC



VBE(sat) vs. IC

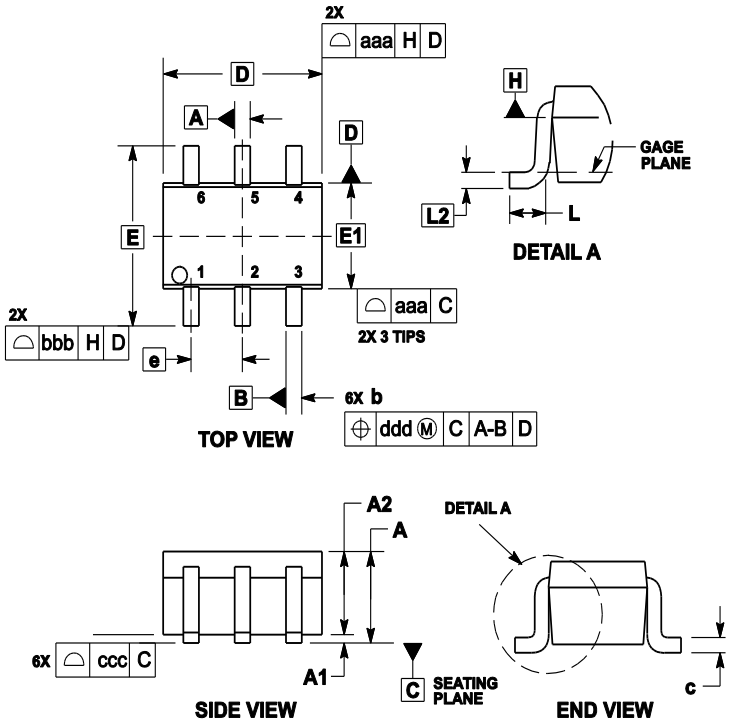


VCE(sat) vs. IC



Capacitance

7.OUTLINE AND DIMENSIONS



Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	---	---	1.10	---	---	0.043
A1	0.00	---	0.10	0	---	0.004
A2	0.70	0.90	1.00	0.027	0.035	0.039
b	0.15	0.20	0.25	0.006	0.008	0.01
C	0.08	0.15	0.22	0.003	0.006	0.009
D	1.80	2.00	2.20	0.07	0.078	0.086
E	2.00	2.10	2.20	0.078	0.082	0.086
E1	1.15	1.25	1.35	0.045	0.049	0.053
e	0.65 BSC			0.026 BSC		
L	0.26	0.36	0.46	0.010	0.014	0.018
L2	0.15 BSC			0.006 BSC		
aaa	0.15			0.01		
bbb	0.30			0.01		
ccc	0.10			0.00		
ddd	0.10			0.00		

8.SOLDERING FOOTPRINT