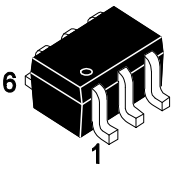
S-LMUN5312DW1T1G

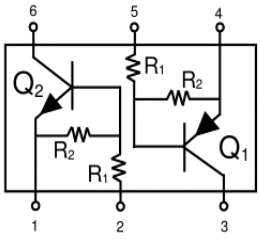
Dual Bias Resistor Transistors
NPN and PNP Silicon Surface Mount Transistors
with Monolithic Bias Resistor Network



SC88(SOT-363)

1. FEATURES

- Simplifies circuit design
- Reduces board space.
- Reduces Component Count
- 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 RESISTOR VALUES

Device	Marking	R1(K)	R2(K)	Shipping
S-LMUN5312DW1T1G	12	22	22	3000/Tape&Reel
S-LMUN5312DW1T3G	12	22	22	13000/Tape&Reel

3. MAXIMUM RATINGS(Ta = 25ºC)

Parameter	Symbol	Limits	Unit
Collector–Emitter Voltage	VCEO	50	V
Collector–Base Voltage	VCBO	50	V
Collector Current — Continuous	IC	100	mA

4. THERMAL CHARACTERISTICS

Parameter (One Junction Heated)	Symbol	Limits	Unit
Total Device Dissipation, (Note 1) @ TA = 25ºC Derate above 25ºC	PD	 187 1.5	 mW mW/ºC
Thermal Resistance, Junction–to–Ambient(Note 1)	RΘJA	670	ºC/W
Parameter (Both Junctions Heated)	**Symbol**	**Limits**	**Unit**
Total Device Dissipation, (Note 1) @ TA = 25ºC Derate above 25ºC	PD	 250 2	 mW mW/ºC
Thermal Resistance, Junction–to–Ambient(Note 1)	RΘJA	493	ºC/W
Thermal Resistance, Junction–to–Lead(Note 1)	RΘJL	188	ºC/W
Junction and Storage temperature	TJ,Tstg	−55~+150	ºC

1. FR–4 @ Minimum Pad

5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Collector–Emitter Breakdown Voltage (IC = 2.0 mA, IB = 0)	VBR(CEO)	50	-	-	V
Collector–Base Breakdown Voltage (IC = 10 μA, IE = 0)	VBR(CBO)	50	-	-	V
Collector-Base Cutoff Current (VCB = 50 V, IE = 0)	ICBO	-	-	100	nA
Collector-Emitter Cutoff Current (VCE = 50 V, IB = 0)	ICEO	-	-	500	nA
Emitter-Base Cutoff Current (VEB = 6.0 V, IC = 0)	IEBO	-	-	0.2	mA

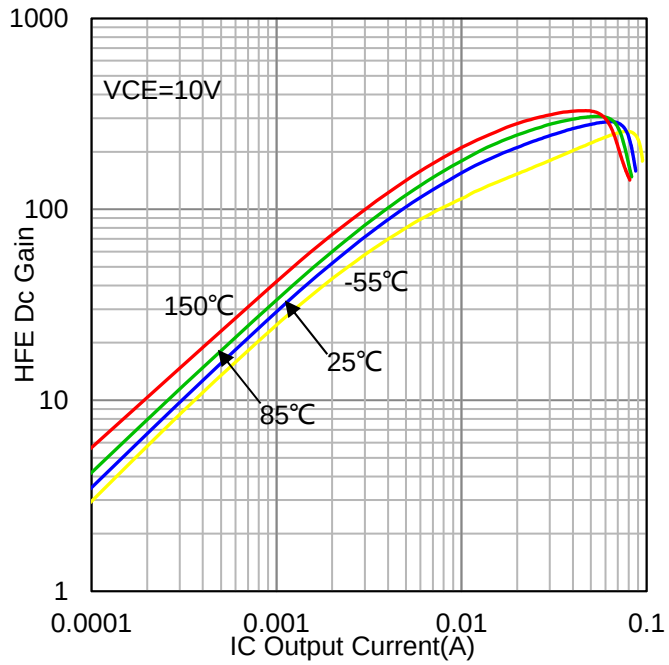
ON CHARACTERISTICS (Note 2.)

DC Current Gain (IC = 5.0 mA, VCE = 10 V)	HFE	60	100	-	
Collector–Emitter Saturation Voltage (IC = 10 mA, IB = 0.3 mA)	VCE(sat)	-	-	0.25	V
On-State Input Voltage (VCE=0.2V, IC=5mA)(NPN) (VCE=0.2V, IC=5mA)(PNP)	VI(on)	- -	1.8 1.9	- -	V
Off-State Input Voltage (VCE=5V, IC=0.1mA)(NPN) (VCE=5V, IC=0.1mA)(PNP)	VI(off)	- -	1.1 1.1	- -	V
Output Voltage (on) (VCC = 5.0 V, VB = 2.5 V, RL =1.0KΩ)	VOL	-	-	0.2	V
Output Voltage (on) (VCC = 5.0 V, VB = 0.5 V, RL =1.0KΩ)	VOH	4.9	-	-	V
Input Resistor	R1	15.4	22	28.6	KΩ
Resistor Ratio	R1/R2	0.8	1	1.2	

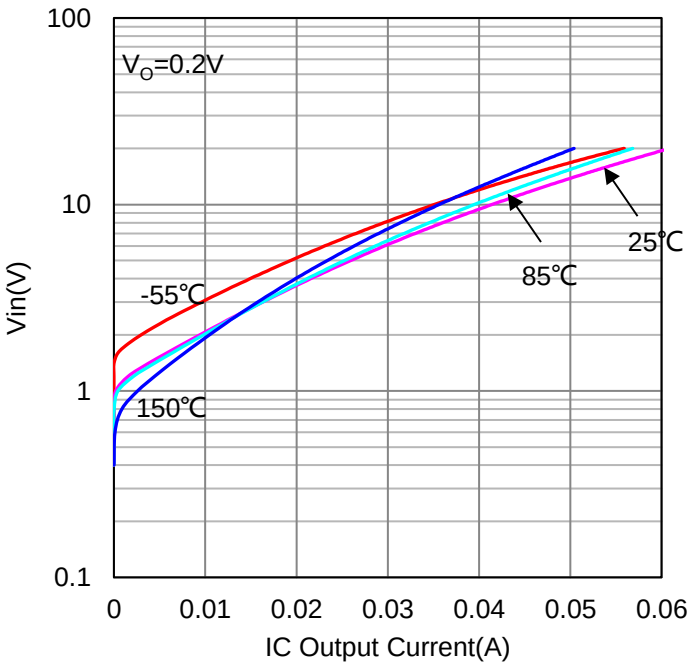
2. Pulse Test: Pulse Width < 300 μs, Duty Cycle < 2.0%

6.ELECTRICAL CHARACTERISTICS CURVES

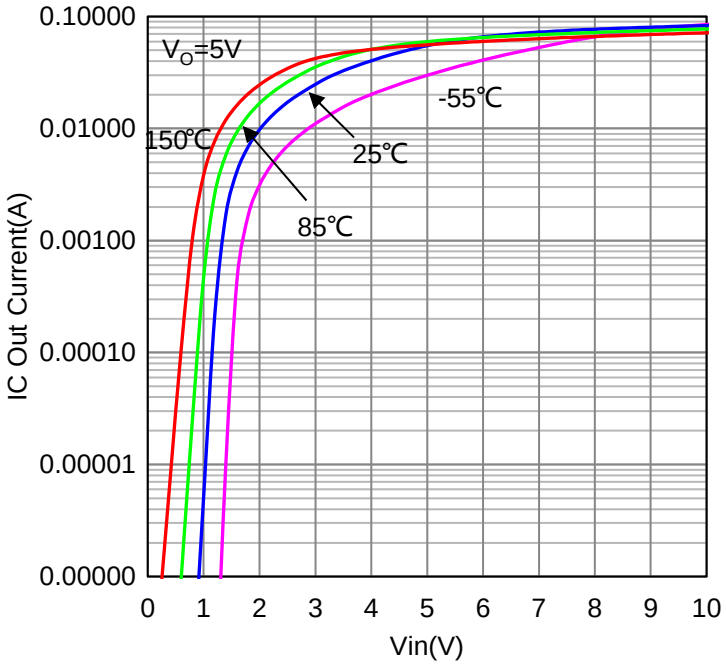
NPN



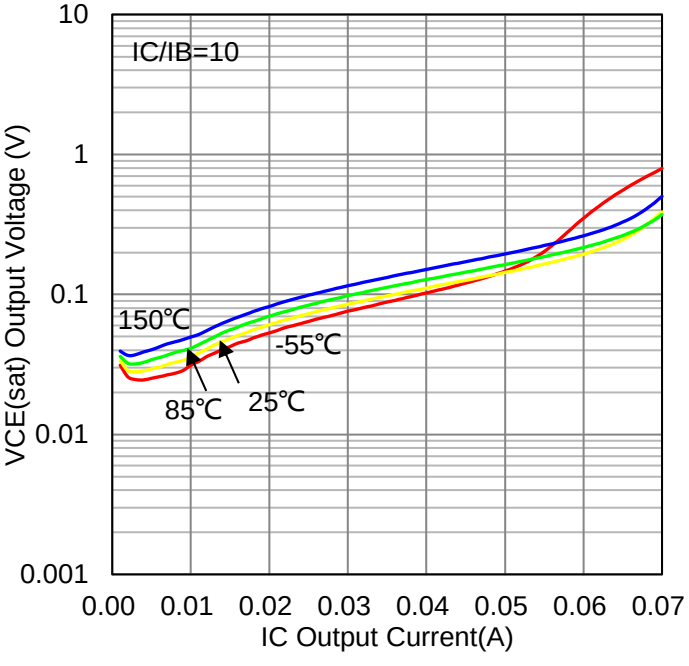
HEE vs. IC



Vin vs. IC



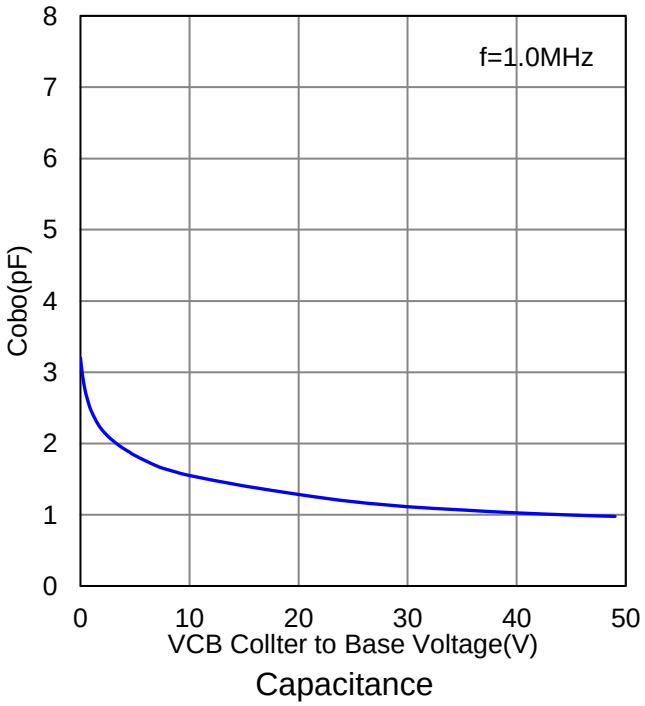
IC vs. Vin



VCE(sat) vs. IC

6.ELECTRICAL CHARACTERISTICS CURVES

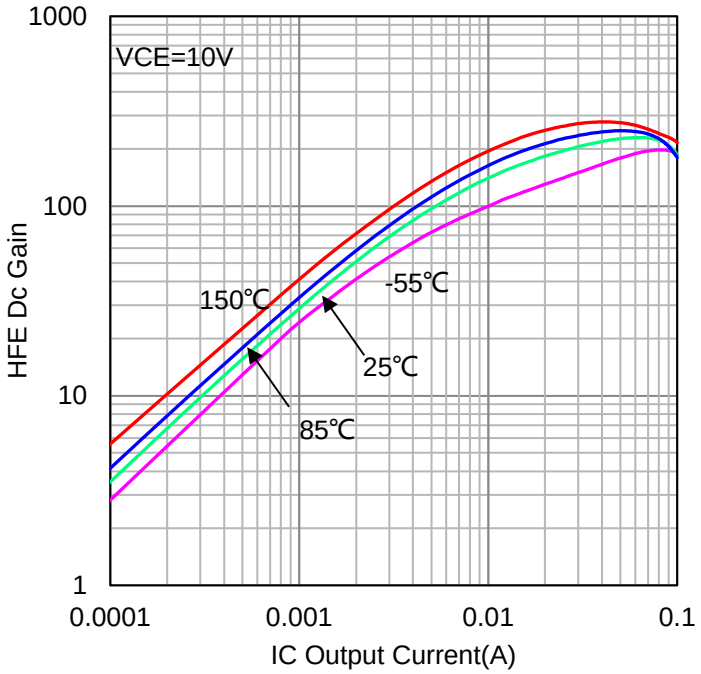
NPN



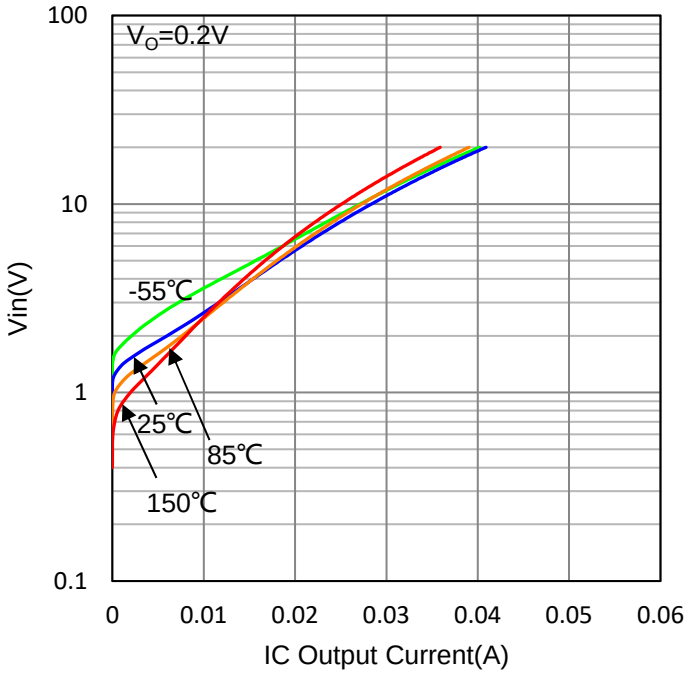
Capacitance

6.ELECTRICAL CHARACTERISTICS CURVES(Con.)

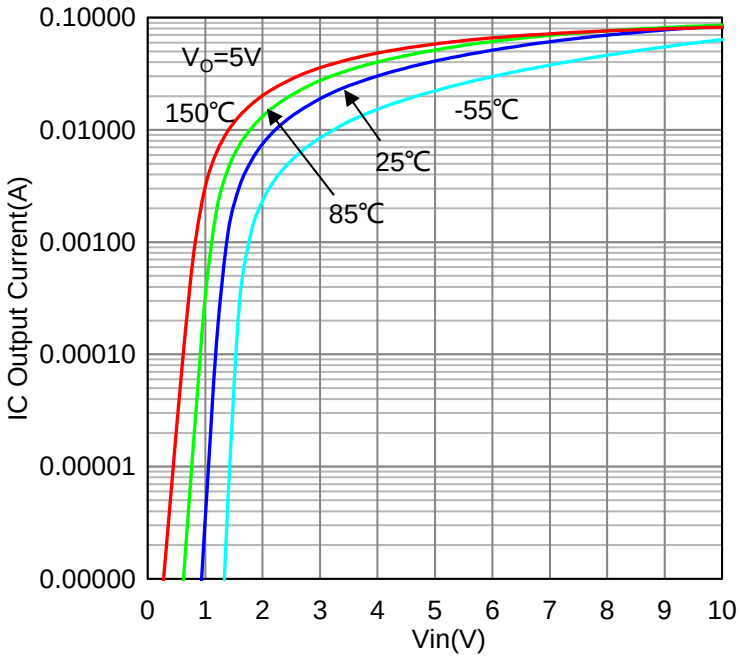
PNP



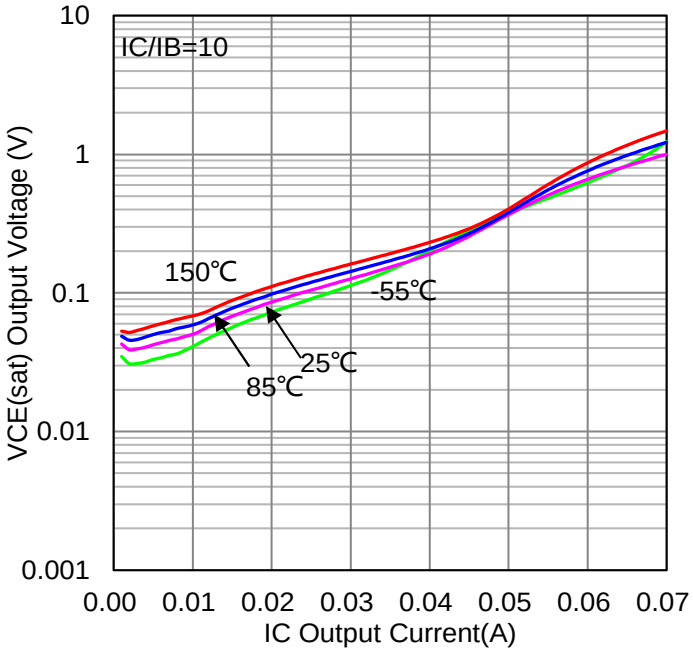
HEE vs. IC



Vin vs. IC



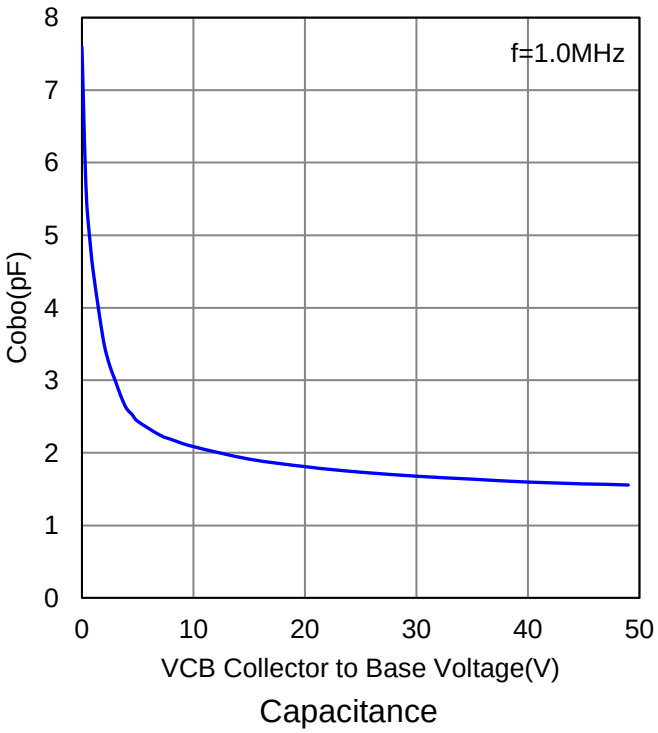
IC vs. Vin



VCE(sat) vs. IC

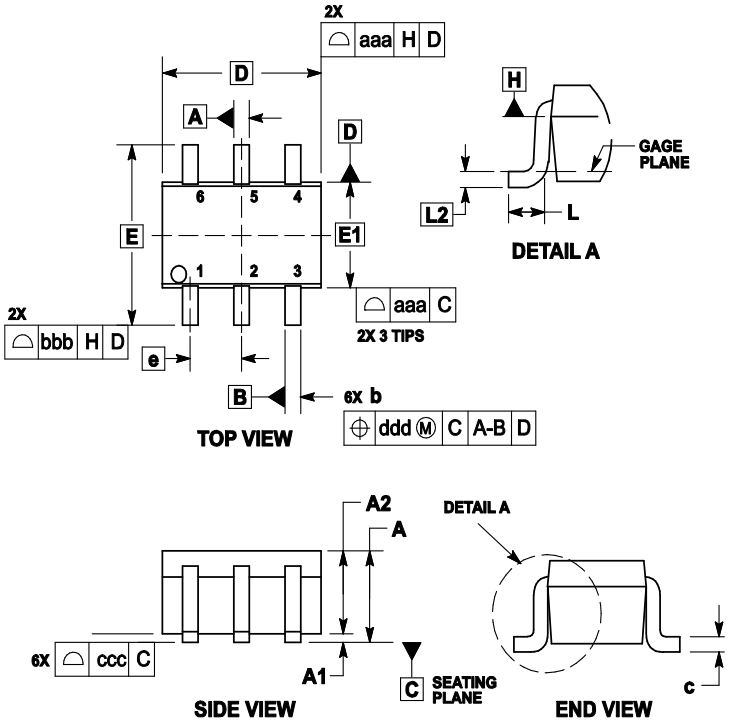
6.ELECTRICAL CHARACTERISTICS CURVES(Con.)

PNP



Capacitance

7.OUTLINE AND DIMENSIONS

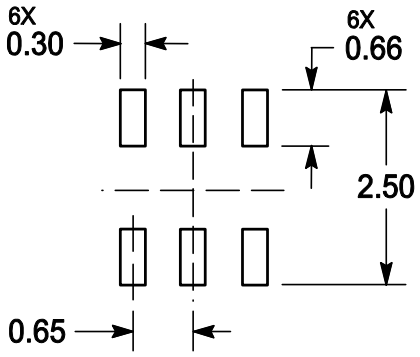


Notes:

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 E1 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



DISCLAIMER

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.

- Before you use our Products for new Project, you are requested to carefully read this document and fully under--stand its contents. LRC shall not be in any way responsible or liable for failure, malfunction or accident arising from the use of any LRC’s Products against warning, caution or note contained in this document.

- All information contained in this document is current as of the issuing date and subject to change without any prior notice. Before purchasing or using LRC's Products,please confirm the latest information with a LRC sales represe--ntative.