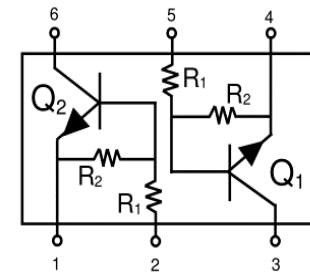
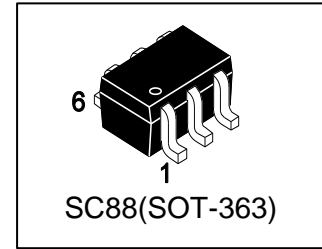


# LMUN5213DW1T1G

## S-LMUN5213DW1T1G

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



### 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
LMUN5213DW1T1G	7C	47	47	3000/Tape&Reel
LMUN5213DW1T3G	7C	47	47	10000/Tape&Reel

### 3. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Collector–Emitter Voltage	V <sub>CEO</sub>	50	V
Collector–Base Voltage	V <sub>CBO</sub>	50	V
Emitter–Base Breakdown Voltage	V <sub>EBO</sub>	6	V
Collector Current — Continuous	I <sub>C</sub>	100	mA

### 4. THERMAL CHARACTERISTICS

Parameter (One Junction Heated)	Symbol	Limits	Unit
Total Device Dissipation, (Note 1) @ TA = 25°C	PD	187	mW
Derate above 25°C		1.5	mW/°C
Thermal Resistance, Junction–to–Ambient(Note 1)	R <sub>θJA</sub>	670	°C/W
Parameter (Both Junctions Heated)	Symbol	Limits	Unit
Total Device Dissipation, (Note 1) @ TA = 25°C	PD	250	mW
Derate above 25°C		2	mW/°C
Thermal Resistance, Junction–to–Ambient(Note 1)	R <sub>θJA</sub>	493	°C/W
Thermal Resistance, Junction–to–Lead(Note 1)	R <sub>θJL</sub>	188	°C/W
Junction and Storage temperature	T <sub>J</sub> , T <sub>stg</sub>	-55~+150	°C

1. FR-4 @ Minimum Pad

**5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)**

## OFF CHARACTERISTICS

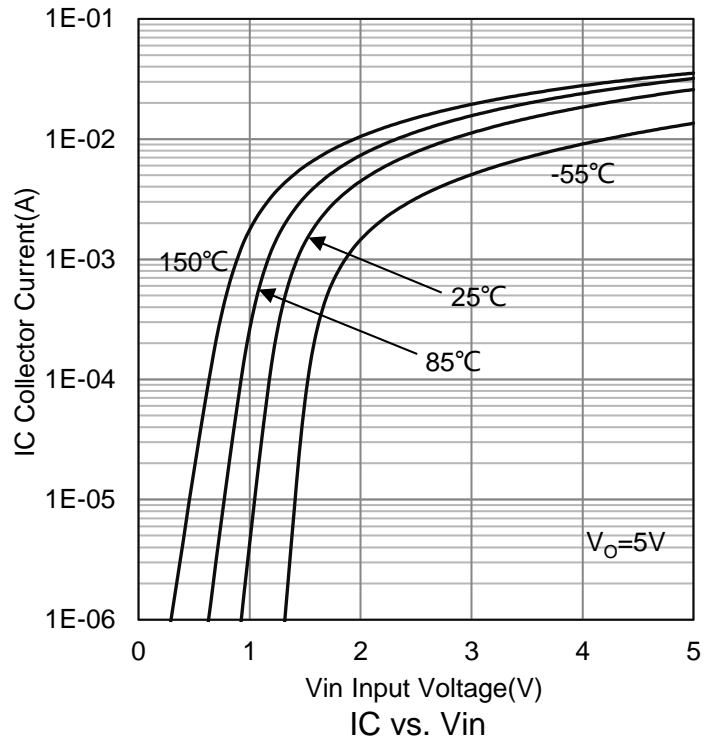
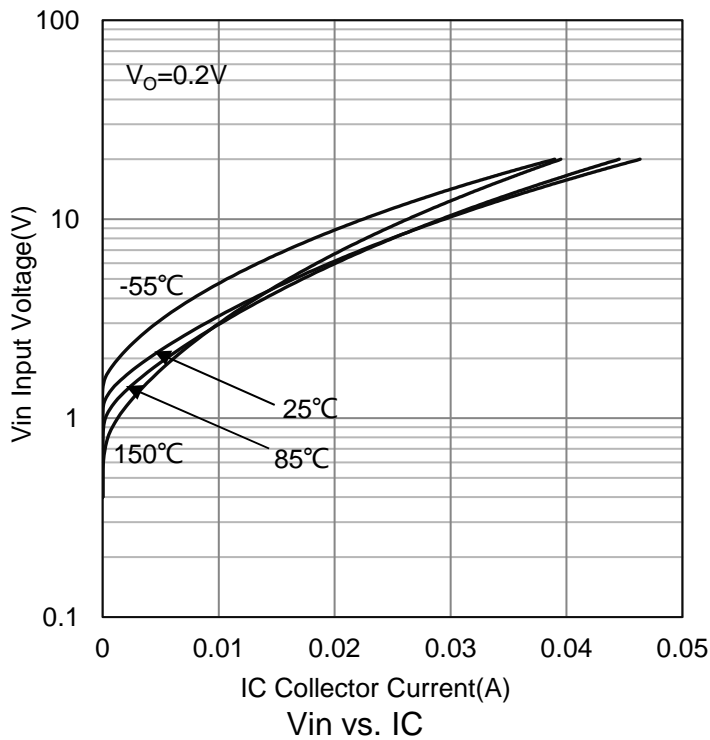
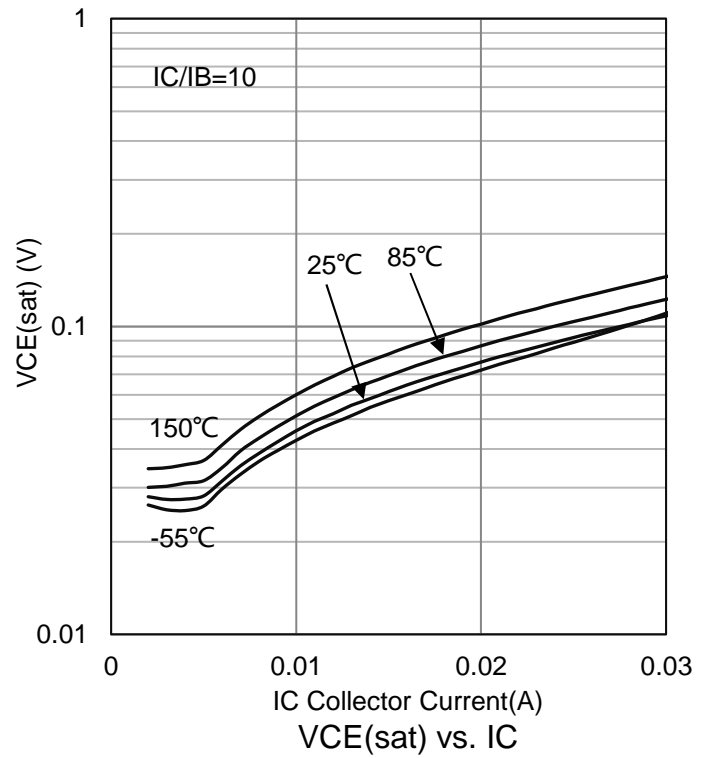
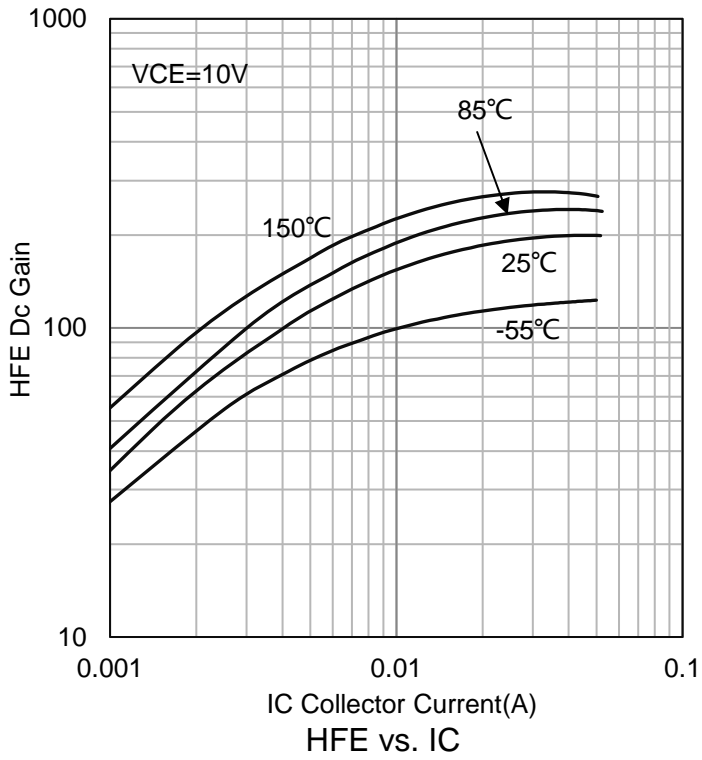
Characteristic	Symbol	Min.	Typ.	Max.	Unit
Collector–Emitter Breakdown Voltage (IC = 2.0 mA, IB = 0)	VBR(CEO)	50	-	-	V
Collector–Base Breakdown Voltage (IC = 10 μA, IE = 0)	VBR(CBO)	50	-	-	V
Emitter–Base Breakdown Voltage (IE = 200 μA, IC = 0)	VBR(EBO)	6	-	-	V
Collector-Base Cutoff Current (VCB = 50 V, 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	-	-	0.1	mA

## ON CHARACTERISTICS (Note 2)

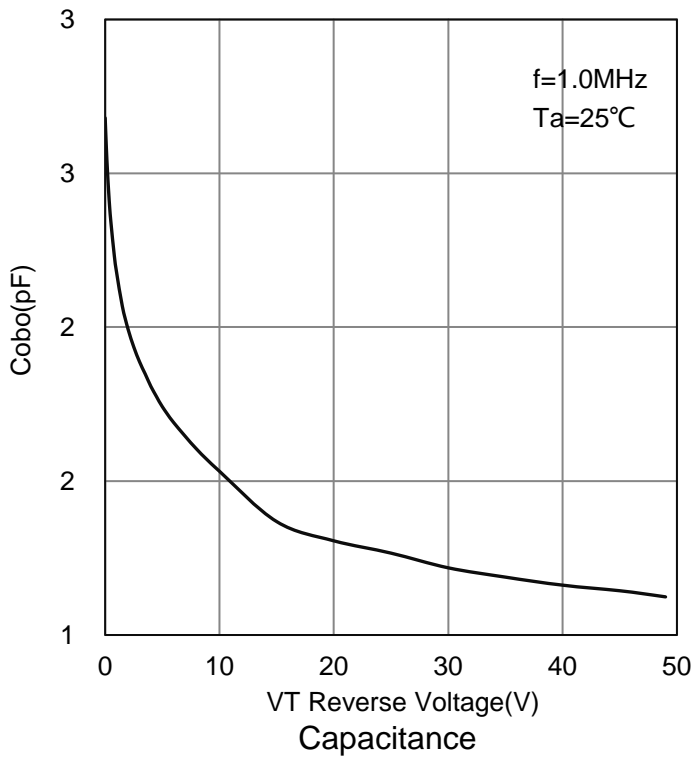
DC Current Gain (IC = 5.0 mA, VCE = 10 V)	HFE	80	140	-	
Collector–Emitter Saturation Voltage (IC = 10 mA, IB = 0.3 mA)	VCE(sat)	-	-	0.25	V
Output Voltage (on) (VCC = 5.0 V, VB = 3.5 V, RL = 1.0KΩ)	VOL	-	-	0.2	V
Output Voltage (on) (VCC = 5.0 V, VB = 0.5 V, RL = 1.0KΩ)	VOH	4.9	-	-	V
Input Resistor	R1	32.9	47	61.1	KΩ
Resistor Ratio	R1/R2	0.8	1	1.2	

2. Pulse Test: Pulse Width &lt; 300 μs, Duty Cycle &lt; 2.0%

6.ELECTRICAL CHARACTERISTICS CURVES



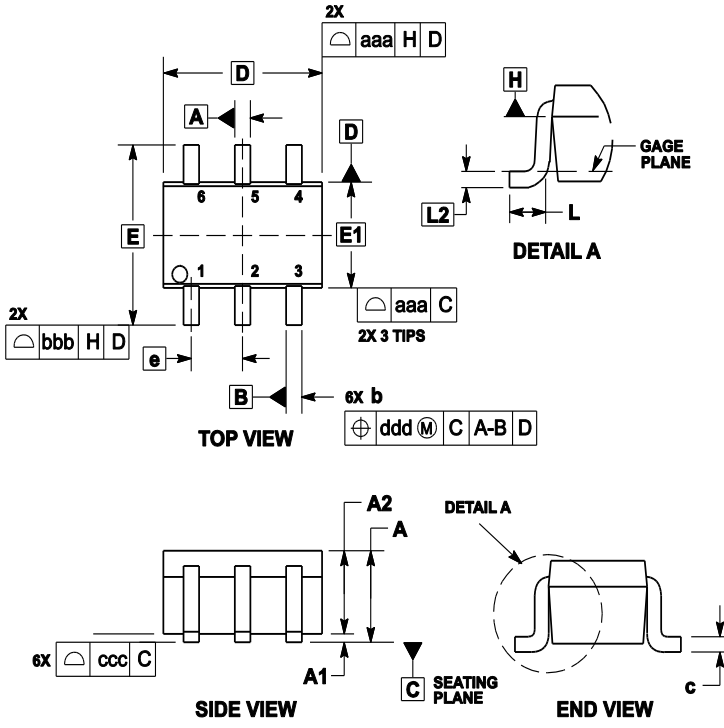
### 6.ELECTRICAL CHARACTERISTICS CURVES(Con.)



7.OUTLINE AND DIMENSIONS

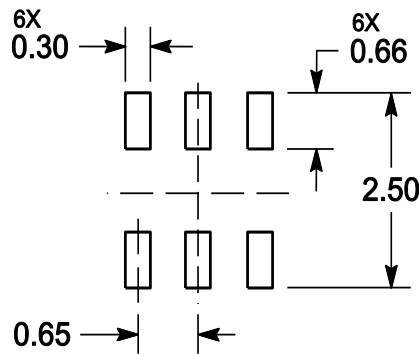
Notes:

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.



DIM	MILLIMETERS			INCHES		
	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



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