

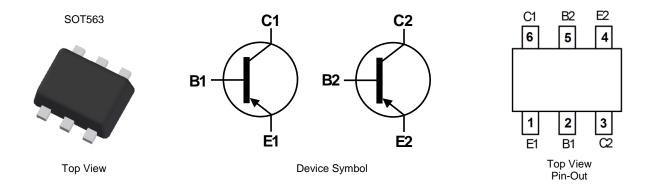
45V MATCHED PAIR PNP SMALL SIGNAL TRANSISTOR IN SOT563

Features

- BV_{CEO} > -45V
- I_C = -100mA High Collector Current
- Pair of PNP Transistors That Are Intrinsically Matched (Note 1)
- 2% Matching on Current Gain (h_{FE})
- 2mV Matching on Base-Emitter Voltage (V_{BE})
- Fully Internally Isolated in a Small Surface Mount Package
- Totally Lead-Free & Fully RoHS Compliant (Notes 2 & 3)
- Halogen and Antimony Free. "Green" Device (Note 4)
- · Qualified to AEC-Q101 for High Reliability

Mechanical Data

- Case: SOT563
- Case Material: Molded Plastic, "Green" Molding Compound;
 UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish Matte Tin Annealed over Copper Leadframe; Solderable per MIL-STD-202, Method 208(3)
- Weight: 0.003 grams (Approximate)



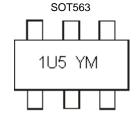
Ordering Information (Note 5)

Ī	Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
	BCM857BV-7	AEC-Q101	1U5	7	8	3,000

Notes:

- 1. Intrinsically matched pair as this is built with adjacent die from the same wafer.
- 2. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
- 3. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
- 4. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds
- 5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information



1U5 = Product Type Marking Code YM = Date Code Marking Y = Year (ex: B = 2014) M = Month (ex: 9 = September)

Date Code Key

Year	2014		2015	2016		2017	2018		2	2019	2020		2021
Code	В		С	D		Е	F			G	Н		I
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Au	g	Sep	Oct	Nov	/ Dec
Code	1	2	3	4	5	6	7	8		9	0	Ν	D



Absolute Maximum Ratings (@TA = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	-50	V
Collector-Emitter Voltage	V _{CEO}	-45	V
Emitter-Base Voltage	V _{EBO}	-5.0	V
Collector Current	Ic	-100	mA
Peak Collector Current	I _{CM}	-200	mA
Peak Base Current	I _{BM}	-200	mA

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation. Total Device (Note 6)	P _D	500	mW
Power Dissipation. Single Transistor (Note 7)	P _D	357	mW
Thermal Resistance, Junction to Ambient Air (Note 6)	R ₀ JA	+250	°C/W
Thermal Resistance, Junction to Ambient Air (Note 7)	R ₀ JA	+350	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C

ESD Ratings (Note 8)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	С

Electrical Characteristics (@TA = +25°C, unless otherwise specified.)

Characteristic (Note 9)	Symbol	Min	Тур	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	-50	_	_	V	$I_C = 100 \mu A, I_B = 0$
Collector-Emitter Breakdown Voltage	BV _{CEO}	-45	_	_	V	I _C = 10mA, I _B = 0
Emitter-Base Breakdown Voltage	BV _{EBO}	-5	_	_	V	$I_E = 100 \mu A, I_C = 0$
DC Current Gain	h _{FE}	200	290	450	_	$V_{CE} = -5.0V, I_{C} = -2.0mA$
DC Current Gain Matching (Note 10)	h _{FE1/} h _{FE2}	0.98	1	_	_	V _{CE} = -5.0V, I _C = -2.0mA
Collector-Emitter Saturation Voltage	V _{CE(sat)}	_	-50 -200	-200 -400	mV	$I_C = -10$ mA, $I_B = -0.5$ mA $I_C = -100$ mA, $I_B = -5.0$ mA
Base-Emitter Saturation Voltage	V _{BE(sat)}	_	-760	_	mV	I _C = -10mA, I _B = -0.5mA
Base-Emitter Voltage	V _{BE(on)}	-600	-650	-700	mV	V _{CE} = -5.0V, I _C = -2.0mA
Base-Emitter Voltage Matching (Note 11)	V _{BE1(on)} - V _{BE2(on)}	_	_	2	mV	V _{CE} = -5.0V, I _C = -2.0mA
Collector Cut-Off Current	Ісво	_	_	-15 -5.0	nΑ μΑ	V _{CB} = -30V V _{CB} = -30V, T _A = +150°C
Emitter Cut-Off Current	I _{EBO}	_	_	-100	nA	V _{EB} = -5.0V, I _C = 0
Gain Bandwidth Product	f _T	100	175	_	MHz	$V_{CE} = -5.0V$, $I_{C} = -10mA$, $f = 100MHz$
Collector-Base Capacitance	Ссво	_	_	2.2	pF	V _{CB} = -10V, f = 1.0MHz
Emitter-Base Capacitance	C _{EBO}	_	10	_	pF	V _{EB} = -0.5V, f = 1.0MHz

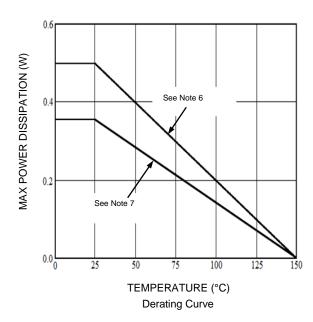
Notes:

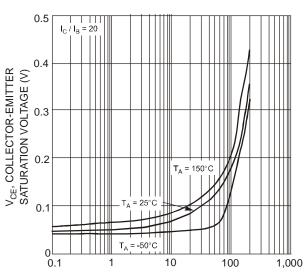
- 6. For a device with two active die running at equal power, mounted on minimum recommended pad layout with 1oz copper that is on a single-sided 1.6mm FR4 PCB; the device is measured under still air conditions whilst operating in a steady-state.
 7. Same as Note 6 except for only one active die running.
 8. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

- 9. Short duration pulse test used to minimize self-heating effect.
- 10. The smaller of the two values is taken as the numerator.
- 11. The smaller of the two values is subtracted from the larger value.

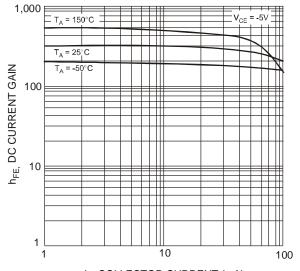


Typical Electrical Characteristics (@T_A = +25°C unless otherwise specified.)

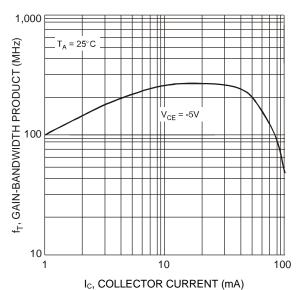




I_C, COLLECTOR CURRENT (mA)
Typical Collector-Emitter Saturation Voltage
vs. Collector Current



I_C, COLLECTOR CURRENT (mA)
Typical DC Current Gain vs. Collector Current

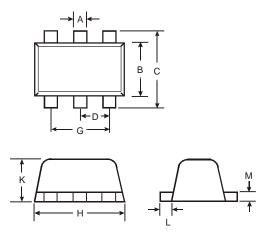


Typical Gain-Bandwidth Product vs. Collector Current



Package Outline Dimensions

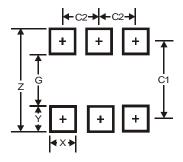
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



SOT563								
Dim	Min	Max	Тур					
Α	0.15	0.30	0.20					
В	1.10	1.25	1.20					
С	1.55	1.70	1.60					
D	-	-	0.50					
G	0.90	1.10	1.00					
Н	1.50	1.70	1.60					
K	0.55	0.60	0.60					
L	0.10	0.30	0.20					
М	0.10	0.18	0.11					
All	Dimens	All Dimensions in mm						

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



Dimensions	SOT563
Z	2.2
G	1.2
Х	0.375
Y	0.5
C1	1.7
C2	0.5



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