Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

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Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

NEW PRODUCT

DEMD48

DUAL NPN/PNP PRE-BIASED TRANSISTOR

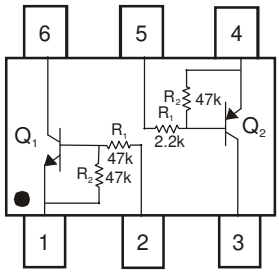
Features

- Epitaxial Planar Die Construction
- Surface Mount Package Suited for Automated Assembly
- Simplifies Circuit Design and Reduces Board Space
- **Lead Free/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**

SOT-563

Mechanical Data

- Case: SOT-563
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish — Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.005 grams (approximate)



Reference	Device Type	R1(Nom)	R2(Nom)
Q_1	NPN	47kΩ	47kΩ
Q_2	PNP	2.2 kΩ	47kΩ

Maximum Ratings, Total Device @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3)	P_D	300	mW
Thermal Resistance, Junction to Ambient Air (Note 3)	$R_{\theta JA}$	417	°C/W
Operating and Storage Temperature Range	T_j, T_{STG}	-55 to +150	°C

Maximum Ratings, Pre-Biased NPN Transistor, Q_1 @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	10	V
Input Voltage	V_{IN}	-10 to +40	V
Output Current (DC)	I_O	100	mA
Peak Collector Current	I_{CM}	100	mA

Maximum Ratings, Pre-Biased PNP Transistor, Q_2 @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-50	V
Collector-Emitter Voltage	V_{CEO}	-50	V
Emitter-Base Voltage	V_{EBO}	-10	V
Input Voltage	V_{IN}	-12 to +5	V
Output Current (DC)	I_O	-100	mA
Peak Collector Current	I_{CM}	-100	mA

Notes:
1. No purposefully added lead.
2. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
3. Device mounted on FR-4 PCB; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.

NEW PRODUCT

Electrical Characteristics, Pre-Biased NPN Transistor, Q_1 @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Cut-Off Current	I_{CBO}	-	-	100	nA	V_{CB} = 50V, I_E = 0A
Collector-Emitter Cut-Off Current	I_{CEO}	-	-	1 50	μA	V_{CE} = 30V, I_B = 0A V_{CE} = 30V, I_B = 0A, T_A = 150°C
Emitter-Base Cut-Off Current	I_{EBO}	-	-	90	μA	V_{EB} = 5V, I_C = 0A
Input Voltage	$V_{I(off)}$	-	1.2	0.8	V	V_{CE} = 5V, I_O = 100μA
	$V_{I(on)}$	3	1.6	-	V	V_{CE} = 0.3V, I_O = 2mA
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	-	-	0.15	V	I_C/I_B = 10mA/0.5mA
DC Current Gain	h_{FE}	80	-	-	-	V_{CE} = 5V, I_C = 5mA
Input Resistance	R_1	33	47	61	kΩ	-
Resistance Ratio	R_2/R_1	0.8	1	1.2	-	-
Collector Capacitance	C_C	-	-	2.5	pF	V_{CB} = 10V, I_E = 0, f = 1MHz

Electrical Characteristics, Pre-Biased PNP Transistor, Q_2 @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Cut-Off Current	I_{CBO}	-	-	-100	nA	V_{CB} = -50V, I_E = 0A
Collector-Emitter Cut-Off Current	I_{CEO}	-	-	-1 -50	μA	V_{CE} = -30V, I_B = 0A V_{CE} = -30V, I_B = 0A, T_A = 150°C
Emitter-Base Cut-Off Current	I_{EBO}	-	-	-180	μA	V_{EB} = -5V, I_C = 0A
Input Voltage	$V_{I(off)}$	-	-0.6	-0.5	V	V_{CC} = -5V, I_O = -100μA
	$V_{I(on)}$	-1.1	-0.75	-	V	V_O = -0.3V, I_O = -5mA
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	-	-	-0.1	V	I_C/I_B = -5mA/-0.25mA
DC Current Gain	h_{FE}	100	-	-	-	V_{CE} = -5V, I_C = -10mA
Input Resistance	R_1	1.54	2.2	2.86	kΩ	-
Resistance Ratio	R_2/R_1	17	21	26	-	-
Collector Capacitance	C_C	-	-	3.0	pF	V_{CB} = -10V, I_E = 0, f = 1MHz

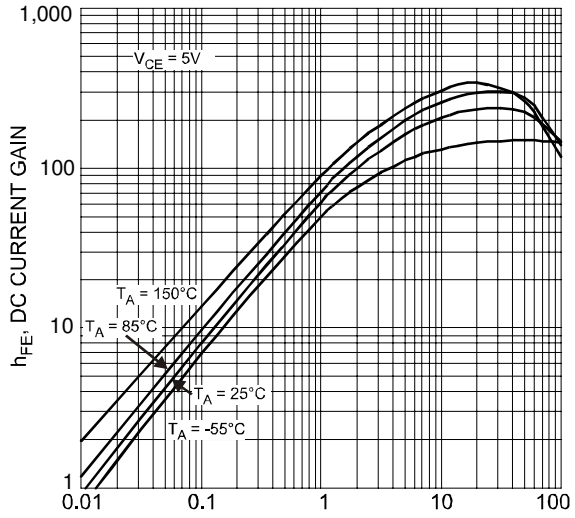


Fig. 1 Typical DC Current Gain vs. Collector Current (Q1, NPN)

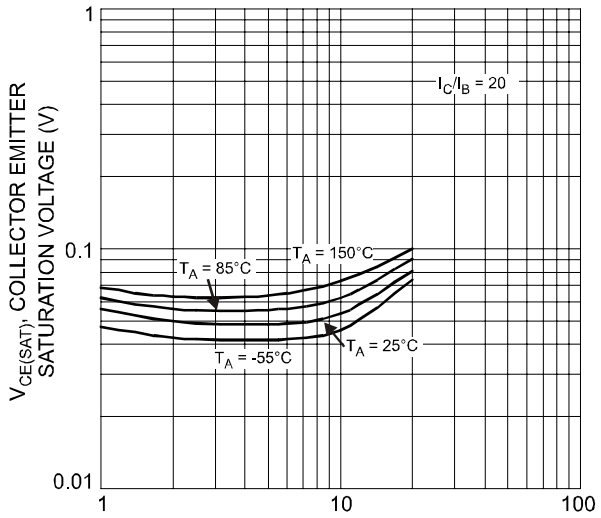


Fig. 2 Typical Collector-Emitter Saturation Voltage vs. Collector Current (Q1, NPN)

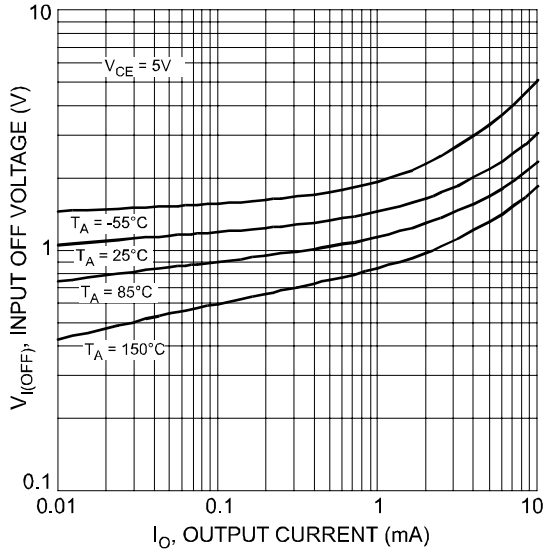


Fig. 3 Typical Input Off Voltage vs. Output Current (Q1, NPN)

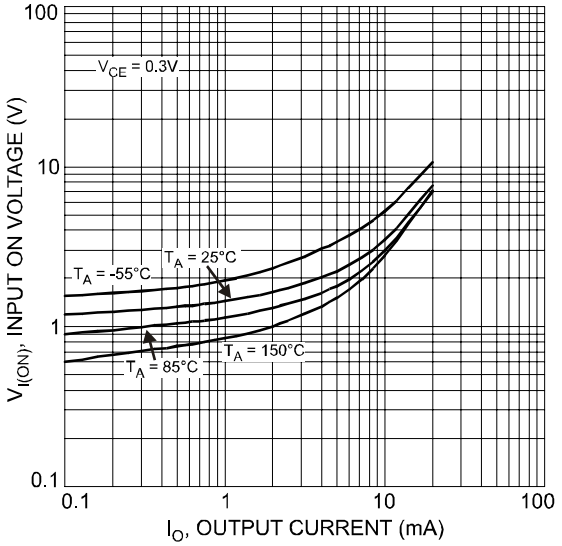


Fig. 4 Typical Input ON Voltage vs. Output Current (Q1, NPN)

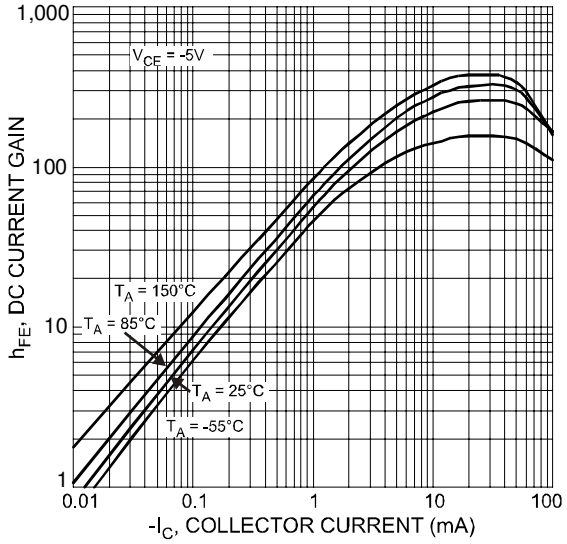


Fig. 5 Typical DC Current Gain vs. Collector Current (Q2, PNP)

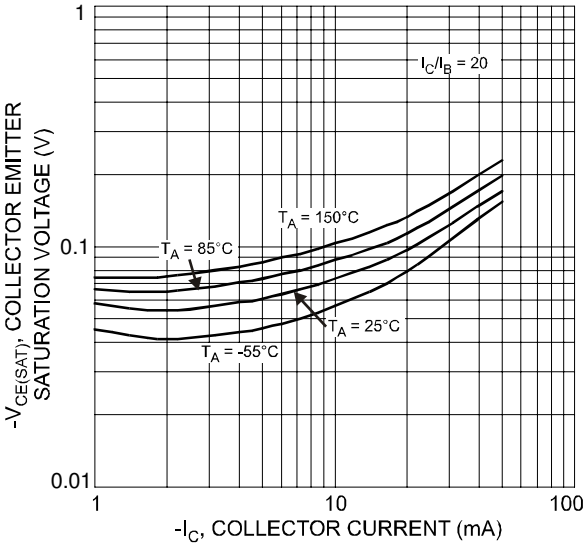


Fig. 6 Typical Collector-Emitter Saturation Voltage vs. Collector Current (Q2, PNP)

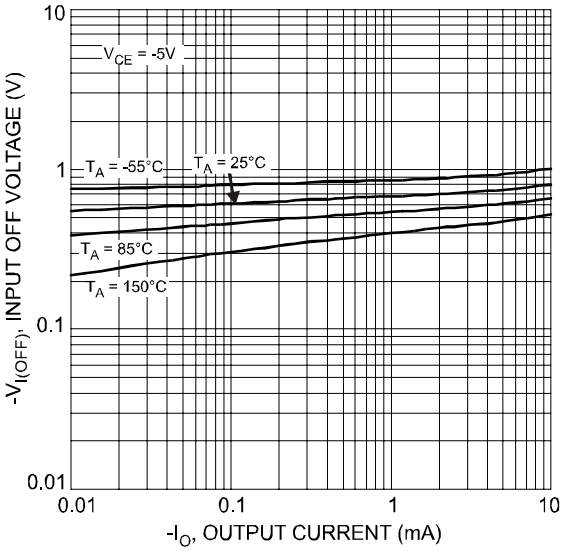


Fig. 7 Typical Input Off Voltage vs. Output Current (Q2, PNP)

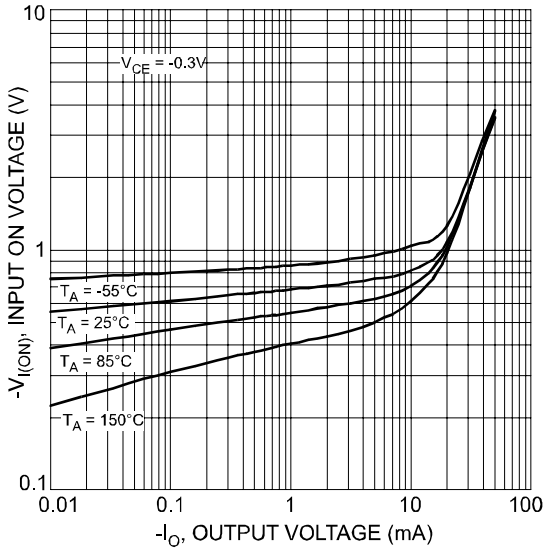


Fig. 8 Typical Input ON Voltage vs. Output Current (Q2, PNP)

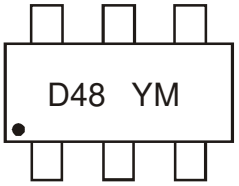
NEW PRODUCT

Ordering Information (Note 4)

Device	Packaging	Shipping
DEMD48-7	SOT-563	3000/Tape & Reel

Note: 4. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



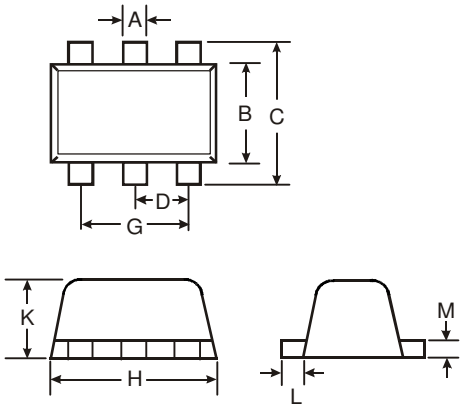
D48 = Product Type Marking Code
YM = Date Code Marking
Y = Year ex: U = 2007
M = Month ex: 9 = September

Date Code Key

Year	2007	2008	2009	2010	2011	2012
Code	U	V	W	X	Y	Z

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Package Outline Dimensions



SOT-563			
Dim	Min	Max	Typ
A	0.15	0.30	0.20
B	1.10	1.25	1.20
C	1.55	1.70	1.60
D	-	-	0.50
G	0.90	1.10	1.00
H	1.50	1.70	1.60
K	0.55	0.60	0.60
L	0.10	0.30	0.20
M	0.10	0.18	0.11
All Dimensions in mm			