



# DIMD10A

## DUAL PRE-BIASED TRANSISTORS FOR POWER MANAGEMENT

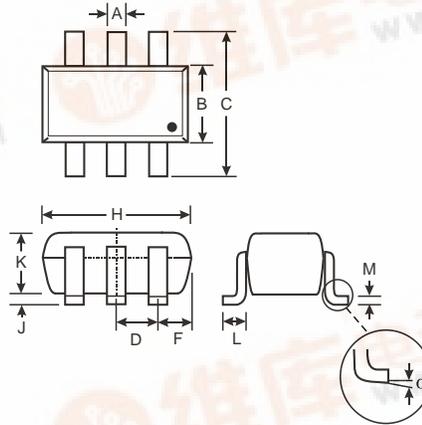
NEW PRODUCT

### Features

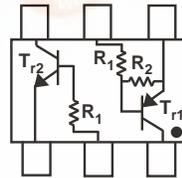
- Epitaxial Planar Die Construction
- Built-In Biasing Resistors
- One 500mA PNP and One 100mA NPN
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **Qualified to AEC-Q101 Standards for High Reliability**

### Mechanical Data

- Case: SC-74R
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminal Connections: See Diagram
- Terminals: Finish Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Marking & Type Code Information: See Last Page
- Ordering Information: See Last Page
- Weight: 0.015 grams (approximate)



SC-74R			
Dim	Min	Max	Typ
A	0.35	0.50	0.38
B	1.50	1.70	1.60
C	2.70	3.00	2.80
D			0.95
F			0.55
H	2.90	3.10	3.00
J	0.013	0.10	0.05
K	1.00	1.30	1.10
L	0.35	0.55	0.40
M	0.10	0.20	0.15
	0°	8°	
All Dimensions in mm			



SCHEMATIC DIAGRAM

P/N	R1	R2	Type Code
DIMD10A	Tr1 Tr2	0.1K 10K	- C73

### Maximum Ratings PNP Section Tr1 @ T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Supply Voltage	V <sub>CC</sub>	-50	V
Input Voltage	V <sub>IN</sub>	-5 to +5	V
Output Current	I <sub>O</sub>	-500	mA

### Maximum Ratings NPN Section Tr2 @ T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CB0</sub>	50	V
Collector-Emitter Voltage	V <sub>CE0</sub>	50	V
Emitter-Base Voltage	V <sub>EBO</sub>	5	V
Collector Current	I <sub>C</sub>	100	mA

### Maximum Ratings - Total @ T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation	P <sub>d</sub>	300*	mW
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

\*Not to exceed 200mW for either Tr1 or Tr2.

Notes: 1. No purposefully added lead.



**Electrical Characteristics PNP Section Tr1** @  $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	$V_{I(off)}$	-0.3			V	$V_{CC} = -5V, I_O = -100\mu A$
	$V_{I(on)}$			-1.5		$V_O = 0.3, I_O = -100mA$
Output Voltage	$V_{O(on)}$		-0.1	-0.3	V	$I_O = -100mA/-5mA$
Input Current	$I_I$			-25	mA	$V_I = -2V$
Output Current	$I_{O(off)}$			-0.5	$\mu A$	$V_{CC} = -50V, V_I = 0V$
DC Current Gain	$G_I$	68				
Gain-Bandwidth Product*	$f_T$		200		MHz	$V_{CE} = -10V, I_E = -50mA, f = 100MHz$

\* Transistor - For Reference Only

**Electrical Characteristics NPN Section Tr2** @  $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	$BV_{CBO}$	50			V	$I_C = 50\mu A$
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	50			V	$I_C = 1mA$
Emitter-Base Breakdown Voltage	$BV_{EBO}$	5			V	$I_E = 50\mu A$
Collector Cutoff Current	$I_{CBO}$			0.5	$\mu A$	$V_{CB} = 50V$
Emitter Cutoff Current	$I_{EBO}$			0.5	$\mu A$	$V_{EB} = 4V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.3	V	$I_C/I_B = 10mA / 1.0mA$
DC Current Transfer Ratio	$h_{FE}$	100	250	600		$I_C = 1mA, V_{CE} = 5V$
Gain-Bandwidth Product*	$f_T$		250		MHz	$V_{CE} = 10V, I_E = -5mA, f = 100MHz$

\* Transistor - For Reference Only

**TYPICAL CURVES - Tr2**

**NEW PRODUCT**

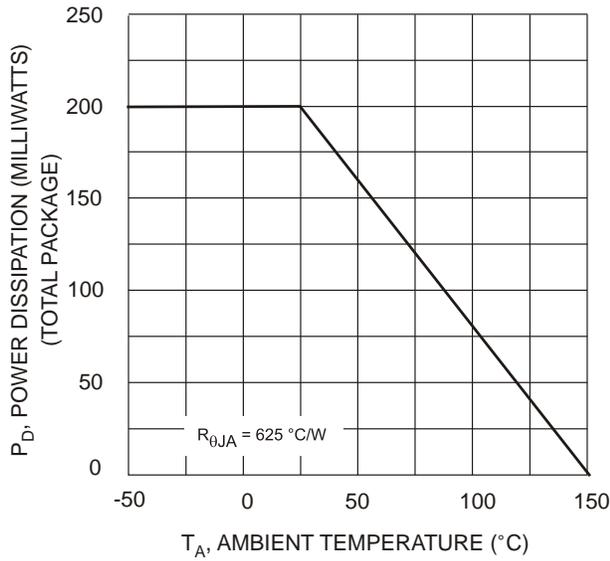


Fig. 1 Derating Curve

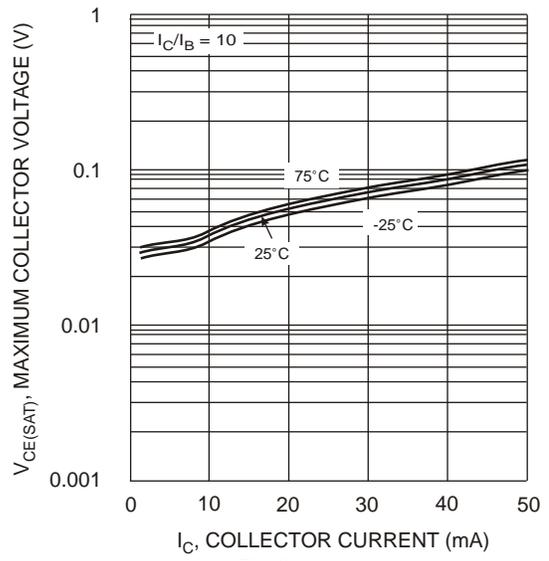


Fig. 2 V<sub>CE(SAT)</sub> vs. I<sub>C</sub>

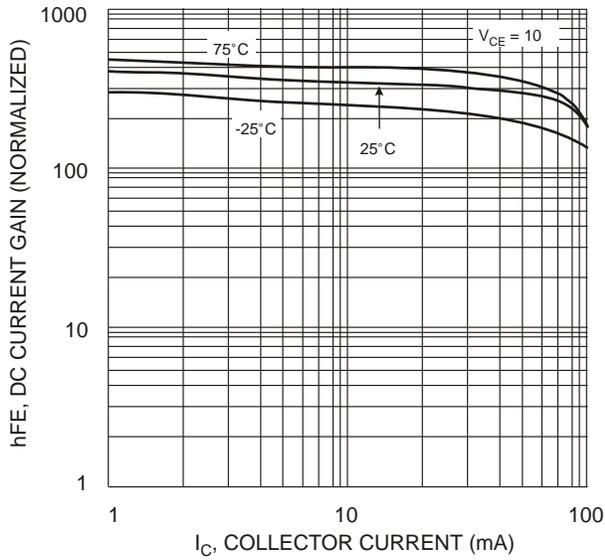


Fig. 3 DC Current Gain

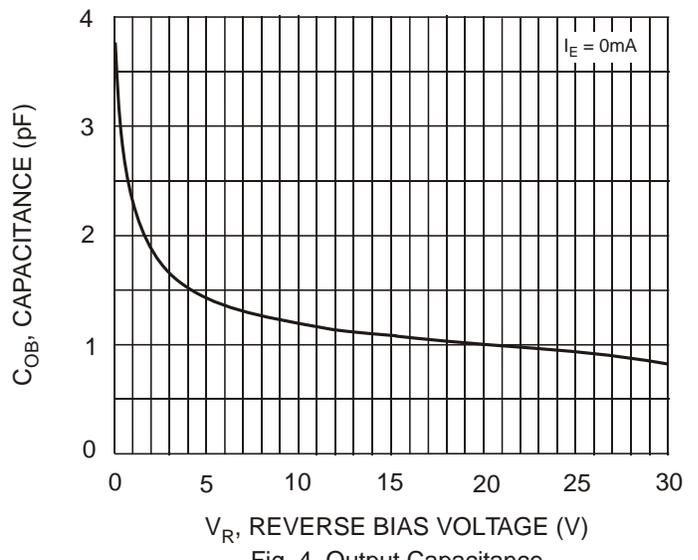


Fig. 4 Output Capacitance

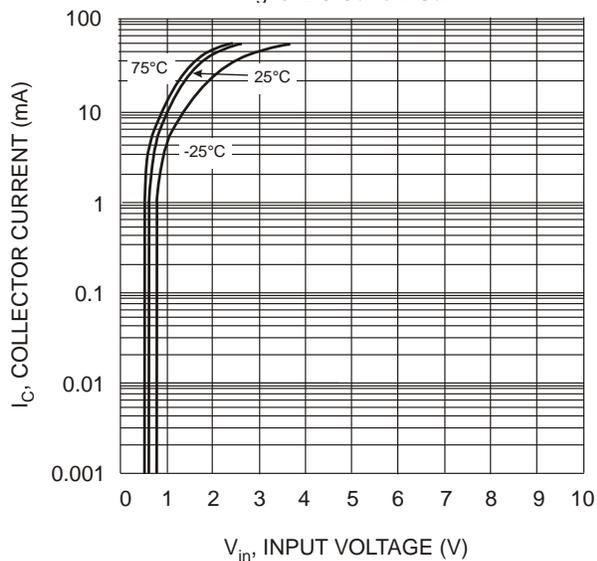


Fig. 5 Collector Current Vs. Input Voltage

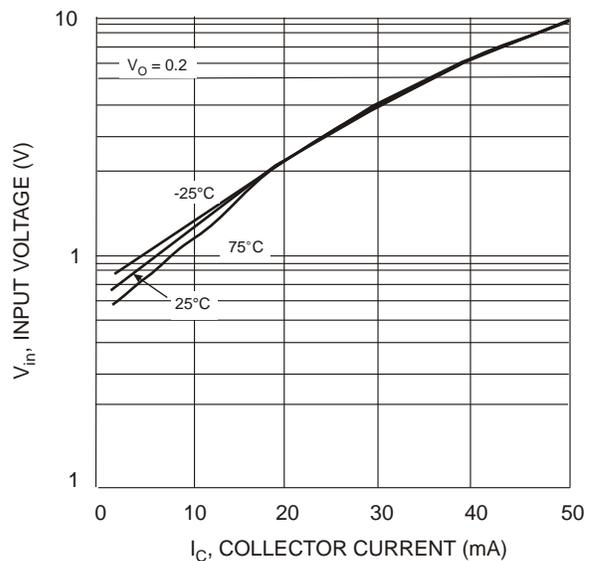


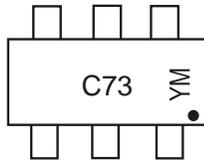
Fig. 6 Input Voltage vs. Collector Current

**Ordering Information** (Note 2)

Device	Packaging	Shipping
DIMD10A-7	SC-74R	3000/Tape & Reel

Notes: 2. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



C73 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year ex: S = 2005  
 M = Month ex: 9 = September

Date Code Key

Year	2005	2006	2007	2008	2009	2010	2011
Code	S	T	U	V	W	X	Y

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