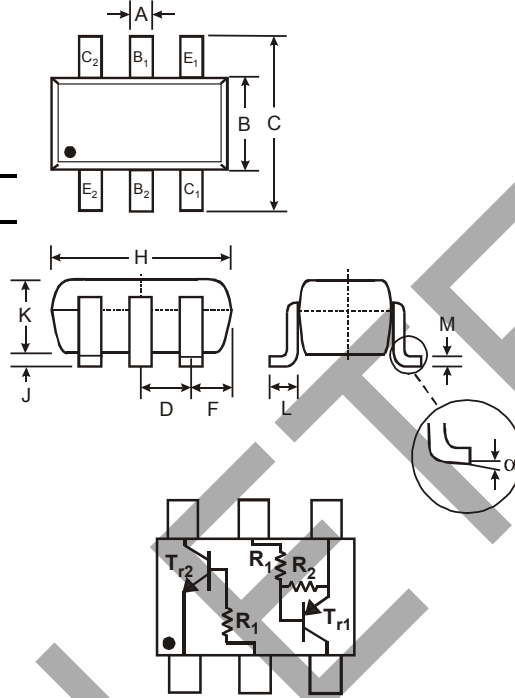


**Features**

- Epitaxial Planar Die Construction
- Built-In Biasing Resistors
- One 500mA PNP and One 100mA NPN
- **Lead Free/RoHS Compliant (Note 1)**
- **"Green" Device (Note 3 and 4)**

**Mechanical Data**

- Case: SOT-363
- Case Material - Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020A
- Terminals: Finish - Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Marking Code: C73 See Page 4
- Ordering & Date Code: See Page 4
- Terminal Connections: See Diagram
- Weight: 0.015 grams (approximate)



SOT-363		
Dim	Min	Max
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
F	0.30	0.40
H	1.80	2.20
J	—	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.25
$\alpha$	0°	8°

All Dimensions in mm

P/N	R1	R2
MIMD10A	Tr1 Tr2	0.1K 10K -

SCHEMATIC DIAGRAM

**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>CBO</sub>	50	V
Collector-Emitter Voltage	V <sub>CEO</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 (Note 2)	P <sub>d</sub>	200	mW
Operating and Storage Temperature Range	T <sub>j</sub> , T <sub>STG</sub>	-55 to +150	°C

- Notes:
1. No purposefully added lead.
  2. Mounted on FR4 PC Board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>.
  3. Diodes Inc.'s "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
  4. Product manufactured with Date Code UO (week 40, 2007) and newer are built with Green Molding Compound. Product manufactured prior to Date Code UO are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

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**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

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**Typical Curves – Tr2**

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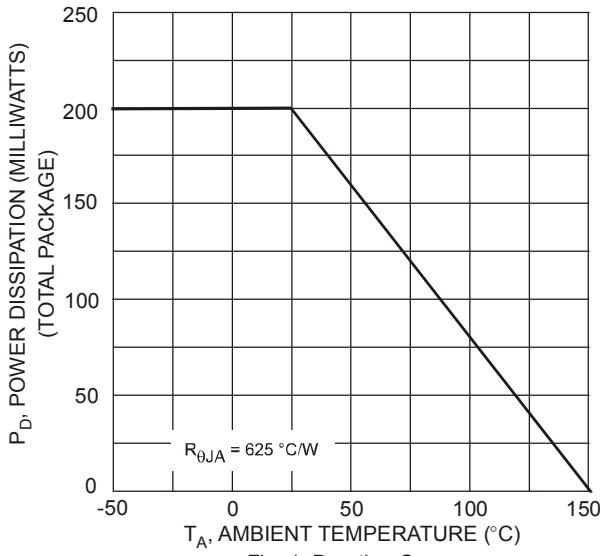


Fig. 1 Derating Curve

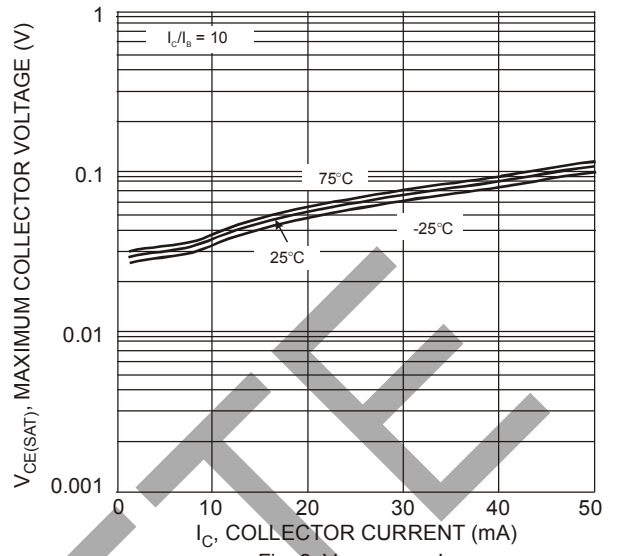


Fig. 2  $V_{CE(SAT)}$  vs.  $I_C$

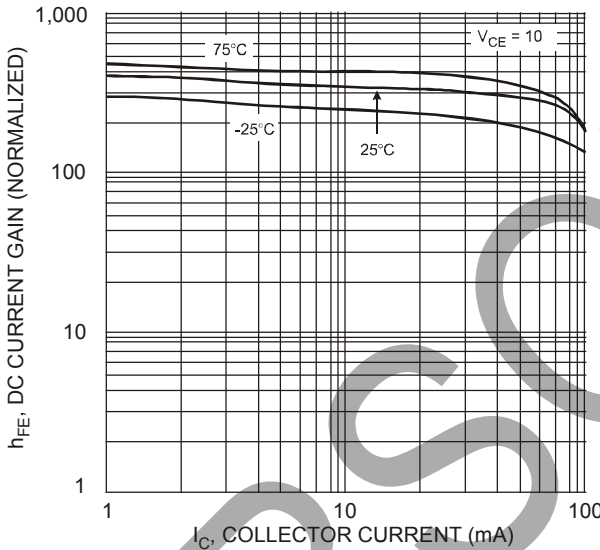


Fig. 3 DC Current Gain

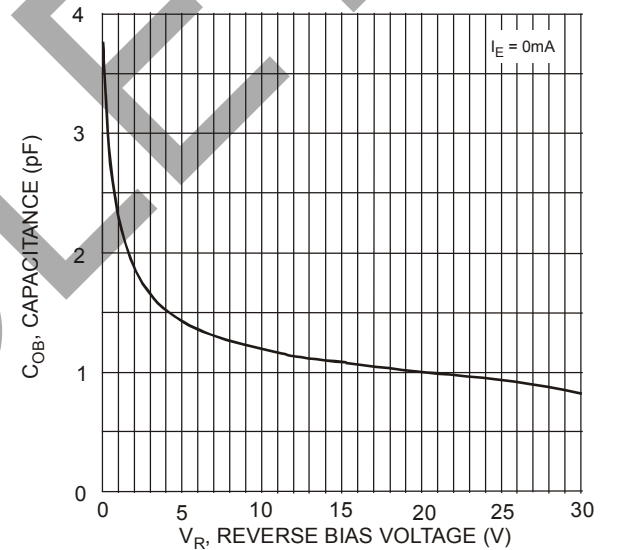


Fig. 4 Output Capacitance

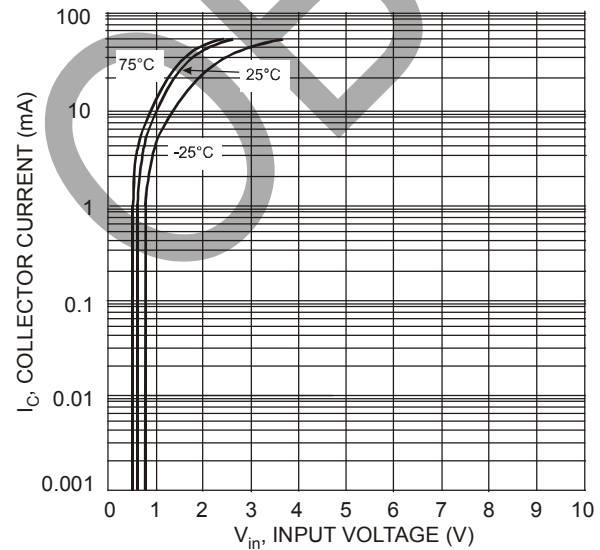


Fig. 5 Collector Current vs. Input Voltage

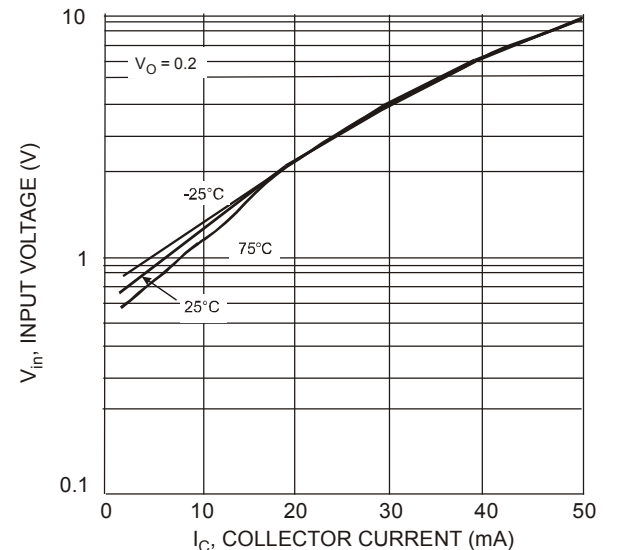


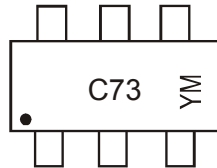
Fig. 6 Input Voltage vs. Collector Current

**Ordering Information** (Note 5)

Device	Packaging	Shipping
MIMD10A-7-F	SOT-363	3000/Tape & Reel

Notes: 5. 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: P = 2003  
 M = Month ex: 9 = September

Date Code Key

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	P	R	S	T	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

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