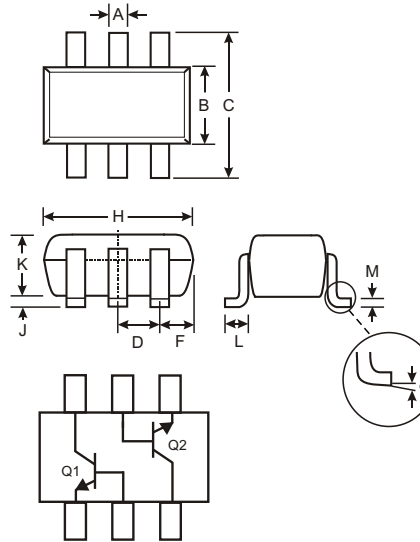


### Features

- Epitaxial Planar Die Construction
- Ideal for Medium Power Amplification and Switching
- Lead Free/RoHS Compliant (Note 3)
- "Green" Device, Note 4 and 5

### Mechanical Data

- Case: SOT-26
- Case Material: Molded Plastic, "Green" Molding Compound, Note 5. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminal Connections: See Diagram
- Terminals: Finish - Matte Tin Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Copper leadframe).
- Marking (See Page 2): K3M
- Ordering & Date Code Information: See Page 2
- Weight: 0.008 grams (approximate)



SOT-26			
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			

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CB0</sub>	300	V
Collector-Emitter Voltage	V <sub>CE0</sub>	300	V
Emitter-Base Voltage	V <sub>EB0</sub>	6.0	V
Collector Current (Note 1) (Note 2)	I <sub>C</sub>	500	mA
Power Dissipation (Note 1)	P <sub>d</sub>	300	mW
Thermal Resistance, Junction to Ambient (Note 1)	R <sub>JA</sub>	417	C/W
Operating and Storage and Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	C

- Notes:
1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; 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>.
  2. When operated under collector-emitter saturation conditions within the safe operating area defined by the thermal resistance rating (R<sub>JA</sub>), power dissipation rating (P<sub>d</sub>) and power derating curve (figure 1).
  3. No purposefully added lead.
  4. 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).
  5. Product manufactured with Date Code 0609 (week 9, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0609 are built with Non-Green Molding Compound and may contain Halogens or Sb<sub>2</sub>O<sub>3</sub> Fire Retardants.

## Electrical Characteristics @ T<sub>A</sub> = 25 C unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 6)</b>					
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	300		V	I <sub>C</sub> = 100 A, I <sub>E</sub> = 0
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	300		V	I <sub>C</sub> = 1.0mA, I <sub>B</sub> = 0
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	6.0		V	I <sub>E</sub> = 100 A, I <sub>C</sub> = 0
Collector Cutoff Current	I <sub>CBO</sub>		100	nA	V <sub>CB</sub> = 200V, I <sub>E</sub> = 0
Collector Cutoff Current	I <sub>EBO</sub>		100	nA	V <sub>CE</sub> = 6.0V, I <sub>C</sub> = 0
<b>ON CHARACTERISTICS (Note 6)</b>					
DC Current Gain	h <sub>FE</sub>	25 40 40			I <sub>C</sub> = 1.0mA, V <sub>CE</sub> = 10V I <sub>C</sub> = 10mA, V <sub>CE</sub> = 10V I <sub>C</sub> = 30mA, V <sub>CE</sub> = 10V
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>		0.5	V	I <sub>C</sub> = 20mA, I <sub>B</sub> = 2.0mA
Base-Emitter Saturation Voltage	V <sub>BE(SAT)</sub>		0.9	V	I <sub>C</sub> = 20mA, I <sub>B</sub> = 2.0mA
<b>SMALL SIGNAL CHARACTERISTICS</b>					
Output Capacitance	C <sub>cb</sub>		3.0	pF	V <sub>CB</sub> = 20V, f = 1.0MHz, I <sub>E</sub> = 0
Current Gain-Bandwidth Product	f <sub>T</sub>	50		MHz	V <sub>CE</sub> = 20V, I <sub>C</sub> = 10mA, f = 100MHz

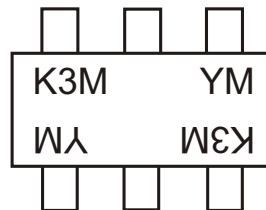
Notes: 6. Short duration test pulse used to minimize self-heating effect.

## Ordering Information (Note 5 & 7)

Device	Packaging	Shipping
MMDTA42-7-F	SOT-26	3000/Tape & Reel

Notes: 5. Product manufactured with Date Code 0609 (week 9, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0609 are built with Non-Green Molding Compound and may contain Halogens or Sb<sub>2</sub>O<sub>3</sub> Fire Retardants.  
7. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Marking Information



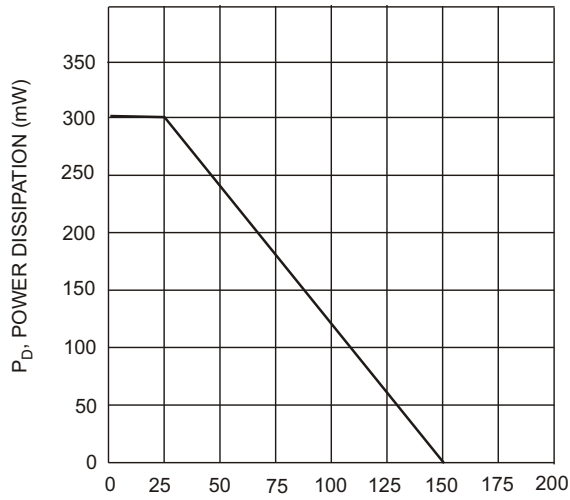
K3M = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year ex: P = 2003  
 M = Month ex: 9 = September

### Date Code Key

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	R	S	T	U	V	W	X	Y	Z

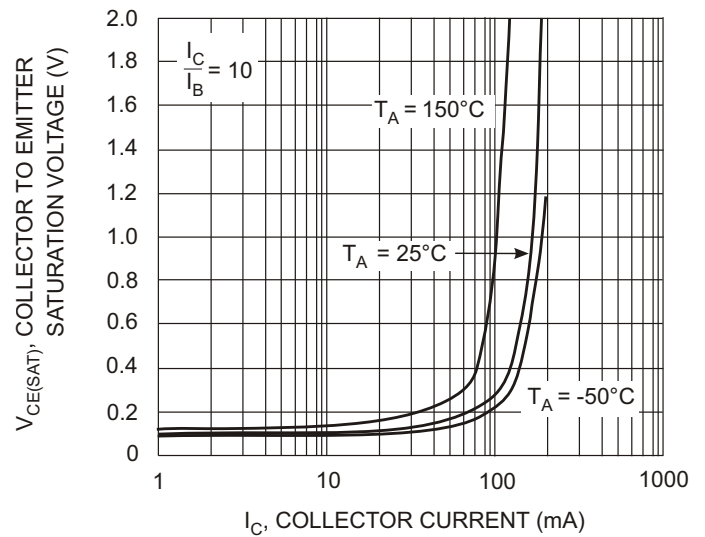
  

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D



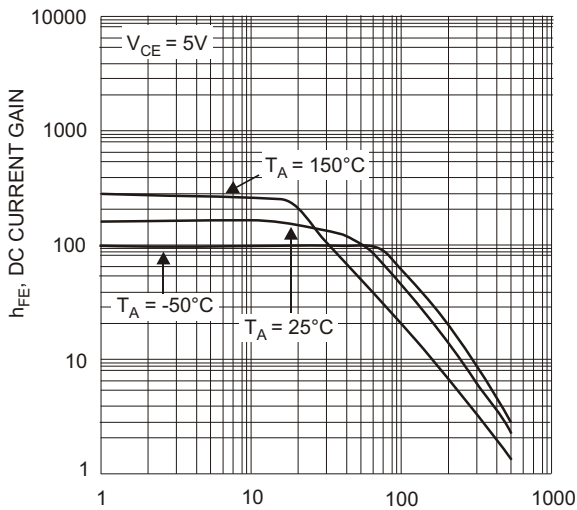
$T_A$ , AMBIENT TEMPERATURE (°C)

Fig. 1, Max Power Dissipation vs Ambient Temperature



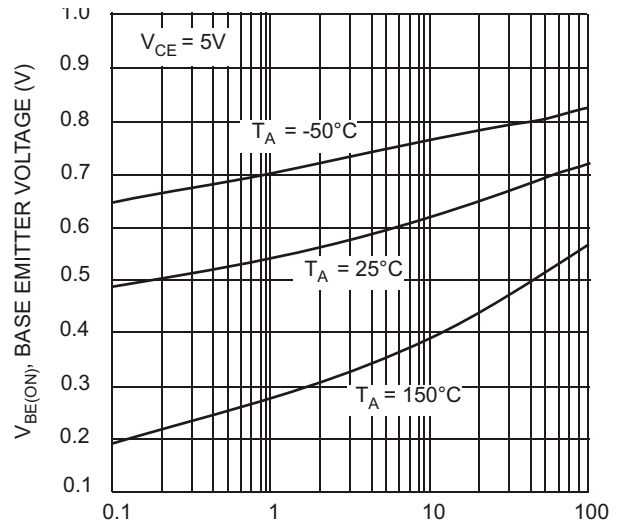
$I_C$ , COLLECTOR CURRENT (mA)

Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current



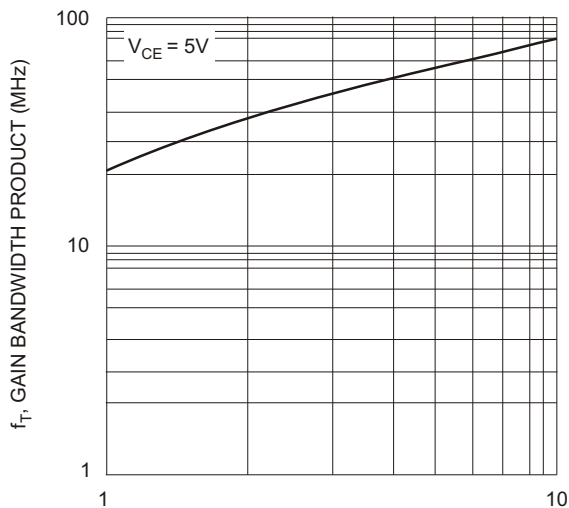
$I_C$ , COLLECTOR CURRENT (mA)

Fig. 3, DC Current Gain vs Collector Current



$I_C$ , COLLECTOR CURRENT (mA)

Fig. 4, Base Emitter Voltage vs Collector Current



$I_C$ , COLLECTOR CURRENT (mA)

Fig. 5, Gain Bandwidth Product vs Collector Current

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