



# **MMDT4126**

**DUAL PNP SMALL SIGNAL SURFACE MOUNT TRANSISTOR** 

#### **Features**

- **Epitaxial Planar Die Construction**
- Complementary NPN Type Available (MMDT4124)
- Ideal for Medium Power Amplification and Switching
- Ultra-Small Surface Mount Package
- Lead Free/RoHS Compliant (Note 3)
- "Green" Device (Note 4 and 5)

### **Mechanical Data**

- Case: SOT-363
- Case Material: Molded Plastic. UL Flammability • Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Terminal Connections: See Diagram
- Marking Information: K2B, See Page 3
- Ordering & Date Code Information: See Page 3
- Weight: 0.006 grams (approximate)

		SOT-363	
	Dim	Min	Max
	Α	0.10	0.30
B C	В	1.15	1.35
	С	2.00	2.20
└┯┘└─┘└┯┘ <u>┈</u> ╎ <del>&lt;──</del> G ──→	D	0.65 N	ominal
<b>⊢−−−−</b> H −−−→	F	0.30	0.40
	н	1.80	2.20
	J		0.10
	к	0.90	1.00
$ \begin{array}{c c} j &   \leftarrow \rightarrow   \leftarrow \rightarrow   \\ D & F & L \\ \end{array} $	L	0.25	0.40
$\begin{pmatrix} & & \\ & $	М	0.10	0.25
ţ,	α	0°	8°
	All Din	nensions	in mm

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

Characteristic		Symbol	Value	Unit		
Collector-Base Voltage		V <sub>CBO</sub>	-25	V		
Collector-Emitter Voltage		VCEO	-25	V		
Emitter-Base Voltage		V <sub>EBO</sub>	-4.0	V		
Collector Current – Continuous	(Note 1)	Ι <sub>C</sub>	-200	mA		
Power Dissipation	(Note 1,2)	Pd	200	mW		
Thermal Resistance, Junction to Ambient	(Note 1)	R <sub>0JA</sub>	625	°C/W		
Operating and Storage Temperature Range		Tj, T <sub>STG</sub>	-55 to +150	°C		

Notes: 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 1. can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.

2. Maximum combined dissipation.

No purposefully added lead. 3.

4. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead\_free/index.php.

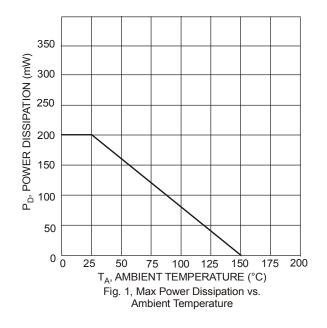
5 Product manufactured with Date Code UO (week 40, 2007) and newer are built with Green Molding Compound. Product manufactured prior to Date Code UO are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

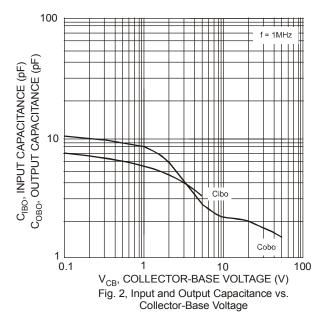


Electrical Characteristics @T<sub>A</sub> = 25°C unless otherwise specified

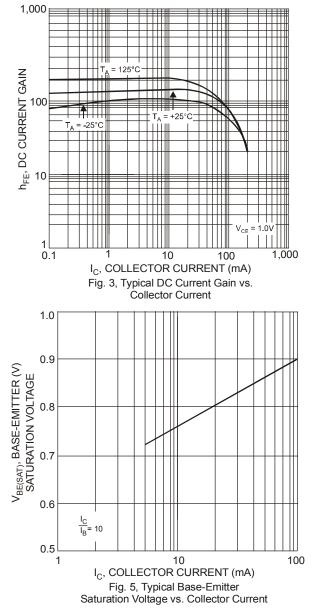
Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 4)					•
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	-25		V	$I_{\rm C} = -10 \mu A, I_{\rm E} = 0$
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	-25		V	$I_{\rm C}$ = -1.0mA, $I_{\rm B}$ = 0
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	-4.0	_	V	$I_{\rm E} = -10 \mu A, I_{\rm C} = 0$
Collector Cutoff Current	I <sub>CBO</sub>	—	-50	nA	$V_{CB} = -20V, I_E = 0V$
Emitter Cutoff Current	I <sub>EBO</sub>	_	-50	nA	V <sub>EB</sub> = -3.0V, I <sub>C</sub> = 0V
ON CHARACTERISTICS (Note 4)					
DC Current Gain	h <sub>FE</sub>	120 60	360 —	—	I <sub>C</sub> = -2.0mA, V <sub>CE</sub> = -1.0V I <sub>C</sub> = -50mA, V <sub>CE</sub> = -1.0V
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>	_	-0.40	V	I <sub>C</sub> = -50mA, I <sub>B</sub> = -5.0mA
Base-Emitter Saturation Voltage	V <sub>BE(SAT)</sub>	—	-0.95	V	I <sub>C</sub> = -50mA, I <sub>B</sub> = -5.0mA
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	Cobo	—	4.5	pF	V <sub>CB</sub> = -5.0V, f = 1.0MHz, I <sub>E</sub> = 0
Input Capacitance	C <sub>ibo</sub>	_	10	pF	$V_{EB}$ = -0.5V, f = 1.0MHz, I <sub>C</sub> = 0
Small Signal Current Gain	h <sub>fe</sub>	120	480	—	V <sub>CE</sub> = -1.0V, I <sub>C</sub> = -2.0mA, f = 1.0kHz
Current Gain-Bandwidth Product	f <sub>T</sub>	250	_	MHz	V <sub>CE</sub> = -20V, I <sub>C</sub> = -10mA, f = 100MHz
Noise Figure	NF		4.0	dB	V <sub>CE</sub> = -5.0V, I <sub>C</sub> = -100μA, R <sub>S</sub> = 1.0kΩ, f = 1.0kHz

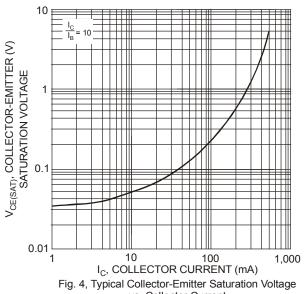
Notes: 4. Short duration pulse test used to minimize self-heating effect.











vs. Collector Current

## Ordering Information (Note 5)

Device	Packaging	Shinning
Device	ruokuging	ompping
MMDT4126-7-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**

Marking Informa	ation														
K2B YM   K2B YM   WA 8ZX   MA 8ZX   Math 8ZX															
Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	J	Κ	L	М	Ν	Р	R	S	Т	U	V	W	Х	Y	Z
Month	Jan	Fel	b I	Mar	Apr	Мау	Ju	n	Jul	Aug	Sep	Oc	t I	Nov	Dec
Code	1	2		3	4	5	6		7	8	9	0		Ν	D



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