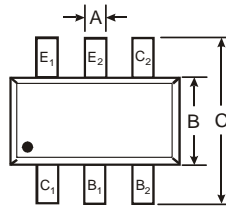


**Features**

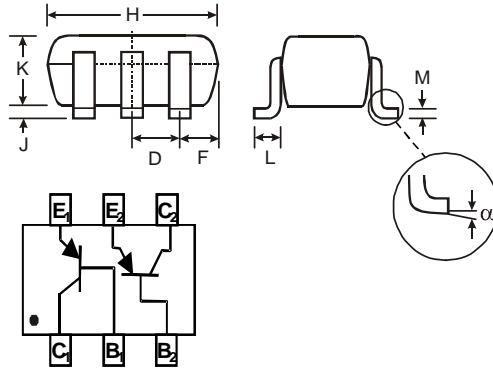
- Epitaxial Planar Die Construction
- Complementary NPN Type Available (DMMT5551)
- Ideal for Low Power Amplification and Switching
- Intrinsically Matched PNP Pair (Note 1)
- 2% Matched Tolerance,  $h_{FE}$ ,  $V_{CE(SAT)}$ ,  $V_{BE(SAT)}$
- **Lead Free/RoHS Compliant (Note 4)**
- **"Green" Device (Note 5 and 6)**



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
$\alpha$	0°	8°	—
All Dimensions in mm			

**Mechanical Data**

- Case: SOT-26
- Case Material: Molded Plastic, "Green" Molding Compound, Note 6. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminal Connections: See Diagram
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Copper leadframe).
- Marking Information: K4S, See Page 3
- Ordering & Date Code Information: See Page 3
- Weight: 0.006 grams (approximate)



**Maximum Ratings** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	$V_{CB0}$	-160	V
Collector-Emitter Voltage	$V_{CE0}$	-150	V
Emitter-Base Voltage	$V_{EB0}$	-5.0	V
Collector Current - Continuous (Note 2)	$I_C$	-200	mA
Power Dissipation (Note 2, 3)	$P_d$	300	mW
Thermal Resistance, Junction to Ambient (Note 2)	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_j, T_{STG}$	-55 to +150	$^\circ\text{C}$

- Notes:
1. Built with adjacent die from a single wafer.
  2. Device mounted on FR5 PCB: 1.0 x 0.75 x 0.62 in.; pad layout as shown on suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
  3. Maximum combined dissipation.
  4. No purposefully added lead.
  5. 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).
  6. Product manufactured with Date Code 0627 (week 27, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0627 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

## Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 7)</b>					
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-160	—	V	$I_C = -100\mu\text{A}, I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-150	—	V	$I_C = -1.0\text{mA}, I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5.0	—	V	$I_E = -10\mu\text{A}, I_C = 0$
Collector Cutoff Current	$I_{CBO}$	—	-50	nA	$V_{CB} = -120\text{V}, I_E = 0$
Emitter Cutoff Current	$I_{EBO}$	—	-50	nA	$V_{EB} = -3.0\text{V}, I_C = 0$
<b>ON CHARACTERISTICS (Note 7)</b>					
DC Current Gain (Note 8)	$h_{FE}$	50	—	—	$I_C = -1.0\text{mA}, V_{CE} = -5.0\text{V}$
		60	240	—	$I_C = -10\text{mA}, V_{CE} = -5.0\text{V}$
		50	—	—	$I_C = -50\text{mA}, V_{CE} = -5.0\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	—	-0.2 -0.5	V	$I_C = -10\text{mA}, I_B = -1.0\text{mA}$ $I_C = -50\text{mA}, I_B = -5.0\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	—	-1.0	V	$I_C = -10\text{mA}, I_B = -1.0\text{mA}$ $I_C = -50\text{mA}, I_B = -5.0\text{mA}$
<b>SMALL SIGNAL CHARACTERISTICS</b>					
Output Capacitance	$C_{obo}$	—	6.0	pF	$V_{CB} = -10\text{V}, f = 1.0\text{MHz}, I_E = 0$
Small Signal Current Gain	$h_{fe}$	40	200	—	$V_{CE} = -10\text{V}, I_C = -1.0\text{mA}, f = 1.0\text{kHz}$
Current Gain-Bandwidth Product	$f_T$	100	300	MHz	$V_{CE} = -10\text{V}, I_C = -10\text{mA}, f = 100\text{MHz}$
Noise Figure	NF	—	8.0	dB	$V_{CE} = -5.0\text{V}, I_C = -200\mu\text{A}, R_S = 10\Omega, f = 1.0\text{kHz}$

- Notes:
- Short duration pulse test used to minimize self-heating effect.
  - The DC Current Gain,  $h_{FE}$ , (matched at  $I_C = -10\text{mA}$  and  $V_{CE} = -5\text{V}$ ) Collector Emitter Saturation Voltage,  $V_{CE(SAT)}$ , and Base Emitter Saturation Voltage,  $V_{BE(SAT)}$  are matched with typical matched tolerances of 1% and maximum of 2%.

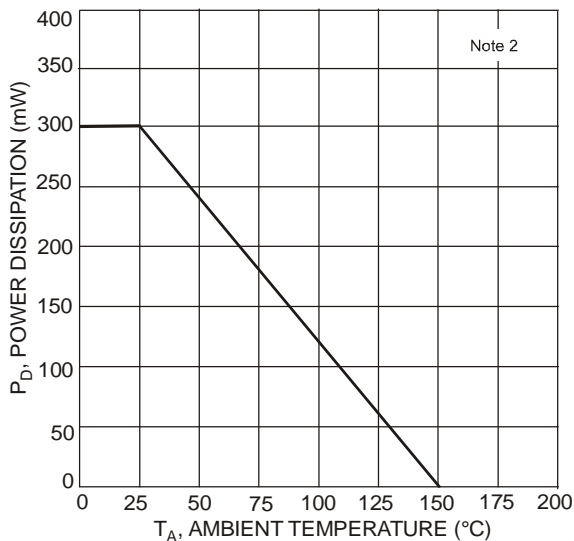


Fig. 1, Max Power Dissipation vs. Ambient Temperature

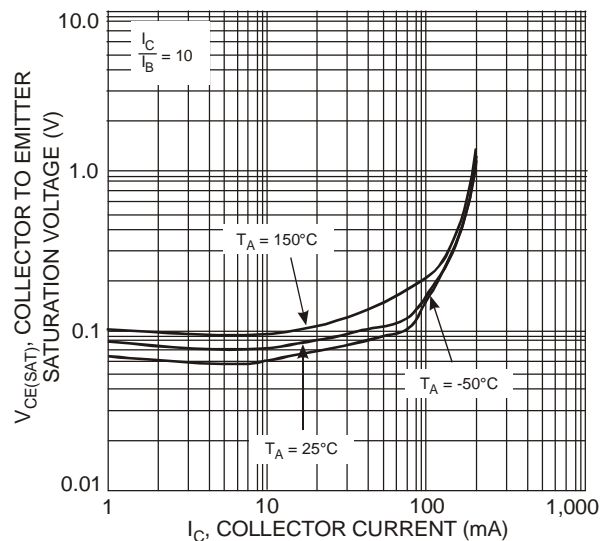


Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current

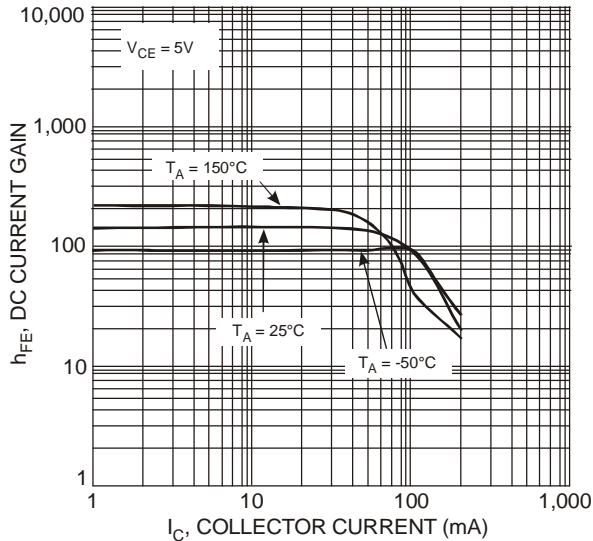


Fig. 3, DC Current Gain vs. Collector Current

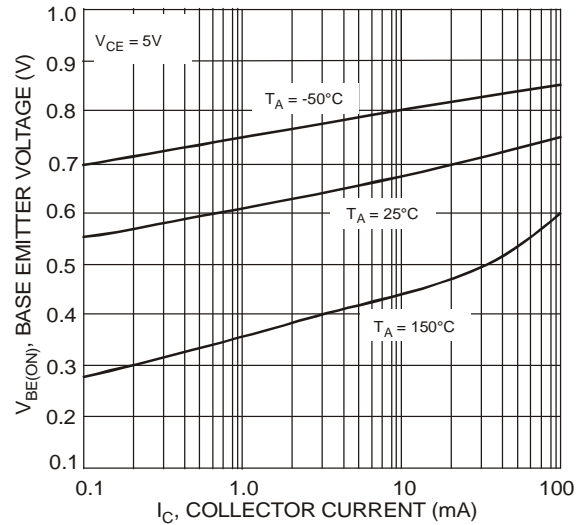


Fig. 4, Base Emitter Voltage vs. Collector Current

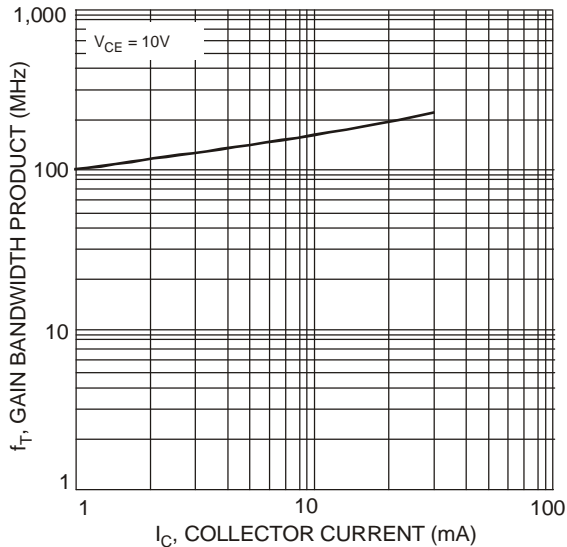


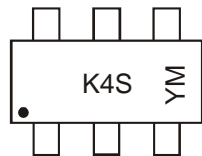
Fig. 5, Gain Bandwidth Product vs. Collector Current

## Ordering Information (Note 6 & 9)

Device	Packaging	Shipping
DMMT5401-7-F	SOT-26	3000/Tape & Reel

Notes: 9. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Marking Information



K4S = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year ex: T = 2006  
 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

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