

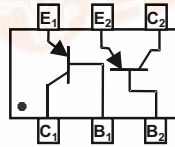
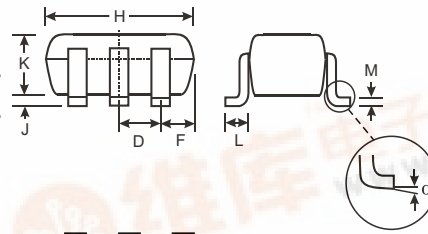
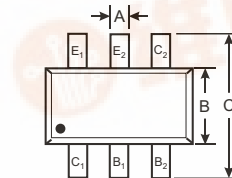


DMMT5401

MATCHED PNP SMALL SIGNAL SURFACE MOUNT TRANSISTOR

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
	0	8	
All Dimensions in mm			

Mechanical Data

- Case: SOT-26
- Case Material: Molded Plastic, "Green" Molding Compound, Note 7. 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 (See Page 2): K4S
- Order & Date Code Information: See Page 2
- Weight: 0.006 grams (approximate)

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-160	V
Collector-Emitter Voltage	V_{CEO}	-150	V
Emitter-Base Voltage	V_{EBO}	-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_{JA}	417	$^{\circ}\text{C}/\text{W}$
Operating and Storage and Temperature Range	T_J, T_{STG}	-55 to +150	C

- Notes:
- Built with adjacent die from a single wafer.
 - 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>.
 - Maximum combined dissipation.
 - No purposefully added lead.
 - Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 - 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 @ $T_A = 25\text{ C}$ unless otherwise specified

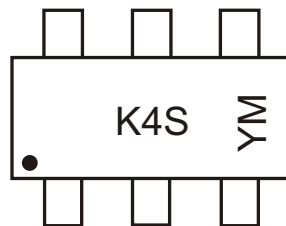
Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)					
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-160		V	$I_C = -100\text{ A}$, $I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-150		V	$I_C = -1.0\text{mA}$, $I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5.0		V	$I_E = -10\text{ A}$, $I_C = 0$
Collector Cutoff Current	I_{CBO}		-50	nA A	$V_{CB} = -120\text{V}$, $I_E = 0$ $V_{CB} = -120\text{V}$, $I_E = 0$, $T_A = 100\text{ C}$
Emitter Cutoff Current	I_{EBO}		-50	nA	$V_{EB} = -3.0\text{V}$, $I_C = 0$
ON CHARACTERISTICS (Note 7)					
DC Current Gain (Note 8)	h_{FE}	50 60 50	240		$I_C = -1.0\text{mA}$, $V_{CE} = -5.0\text{V}$ $I_C = -10\text{mA}$, $V_{CE} = -5.0\text{V}$ $I_C = -50\text{mA}$, $V_{CE} = -5.0\text{V}$
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	$I_C = -10\text{mA}$, $I_B = -1.0\text{mA}$ $I_C = -50\text{mA}$, $I_B = -5.0\text{mA}$
SMALL SIGNAL CHARACTERISTICS					
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	$V_{CE} = -5.0\text{V}$, $I_C = -200\text{ A}$, $R_S = 10\text{ }\Omega$ $f = 1.0\text{kHz}$

Ordering Information (Note 6 & 9)

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

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

Marking Information

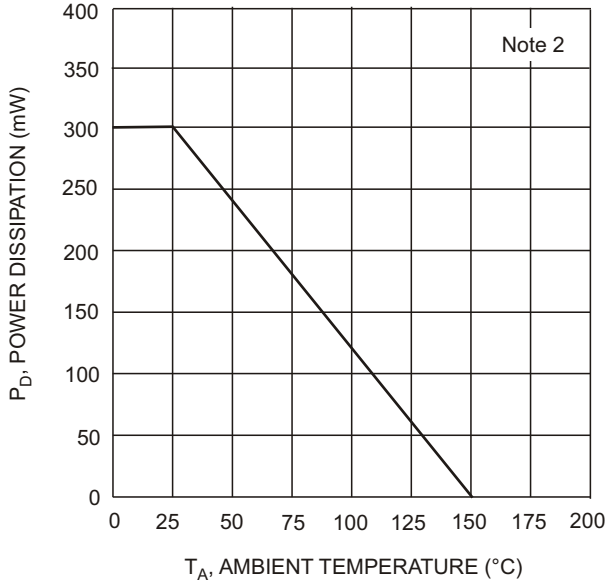


K4S = Product Type Marking Code
 YM = Date Code Marking
 Y = Year ex: T = 2006
 M = Month ex: 9 = September

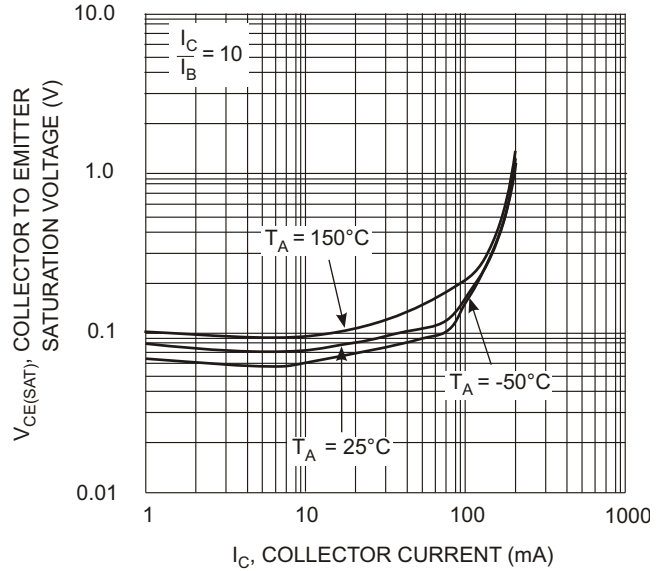
Date Code Key

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

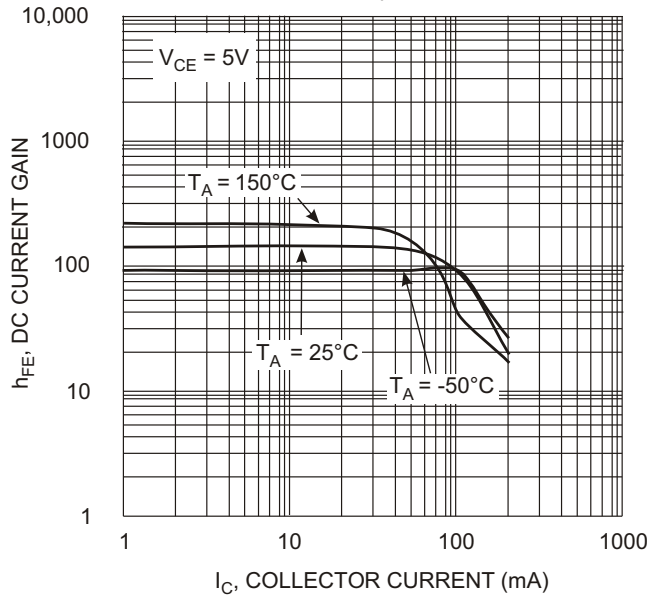
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D



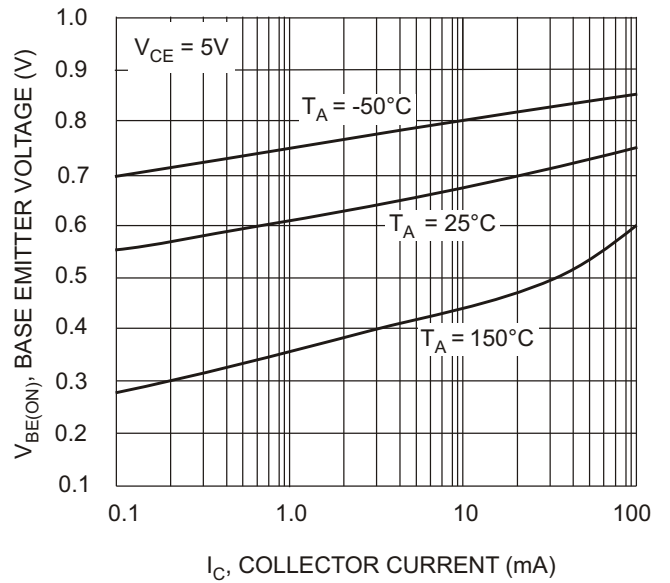
T_A , AMBIENT TEMPERATURE (°C)
Fig. 1, Max Power Dissipation vs Ambient Temperature



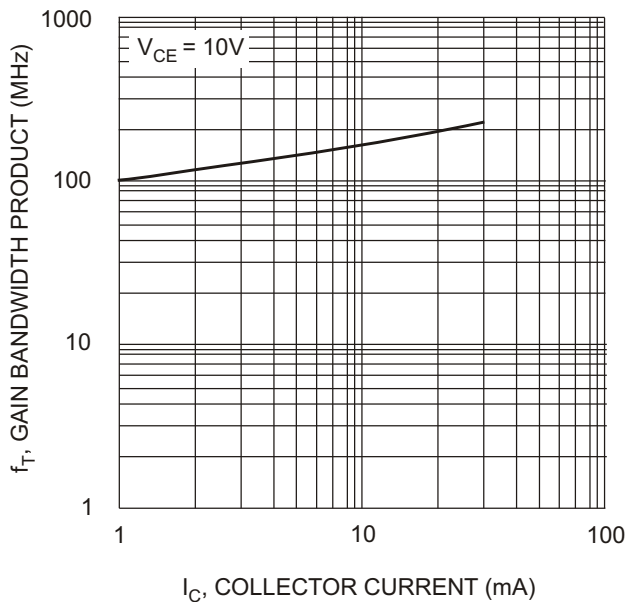
I_C , COLLECTOR CURRENT (mA)
Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current



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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