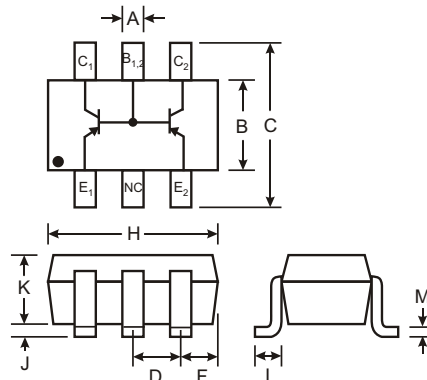


### Features

- Epitaxial Planar Die Construction
- Intrinsically Matched PNP Pair (Note 1)
- Small Surface Mount Package
- 2%  $h_{FE}$  Matched Tolerance
- Lead Free/RoHS Compliant (Note 3)**
- "Green" Device (Note 5 and 6)**

### Mechanical Data

- Case: SOT-26
- Case Material: Molded Plastic, "Green" Molding Compound, Note 6. UL Flammability Classification Rating 94V-0
- Terminal Connections: See Diagram
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Copper leadframe).
- Marking Information - See page 2
- Ordering Information: See Below
- Weight: 0.015 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
All Dimensions in mm			

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

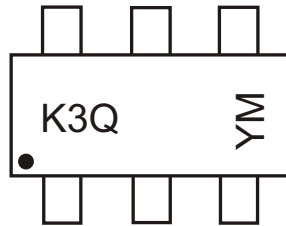
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	-40	V
Collector-Emitter Voltage	$V_{CEO}$	-40	V
Emitter-Base Voltage	$V_{EBO}$	-5.0	V
Collector Current - Continuous	$I_C$	-200	mA
Power Dissipation (Note 2)	$P_d$	225	mW
Thermal Resistance, Junction to Ambient (Note 2)	$R_{JA}$	556	C/W
Operating and Storage and Temperature Range	$T_j, T_{STG}$	-55 to +150	C

### Ordering Information (Note 4 & 6)

Device	Packaging	Shipping
DMMT3906-7-F	SOT-26	3000/Tape & Reel

- 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. No purposefully added lead.
  4. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
  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 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 Sb2O3 Fire Retardants.

## Marking Information



K3Q = 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

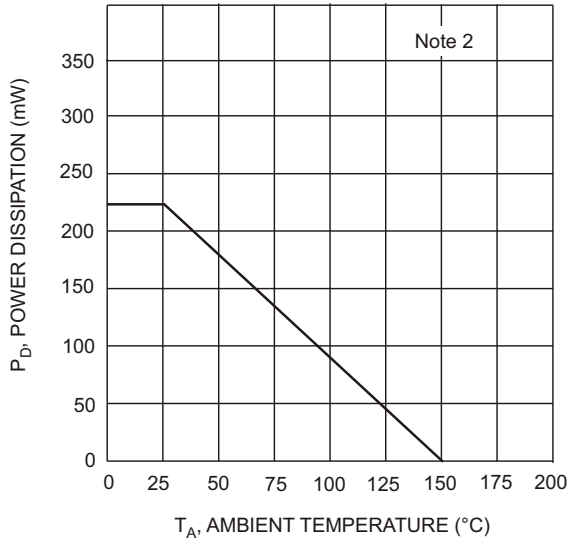
  

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

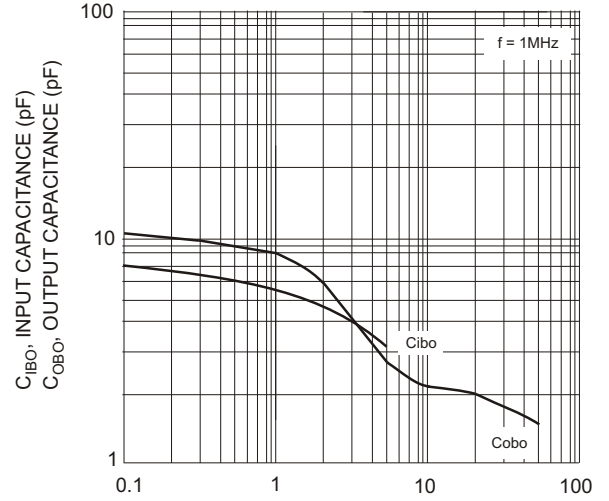
## Electrical Characteristics @ T<sub>A</sub> = 25 C unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 7)</b>					
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	-40		V	I <sub>C</sub> = -10 A, I <sub>E</sub> = 0
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	-40		V	I <sub>C</sub> = -1.0mA, I <sub>B</sub> = 0
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	-5.0		V	I <sub>E</sub> = -10 A, I <sub>C</sub> = 0
Collector Cutoff Current	I <sub>CEX</sub>		-50	nA	V <sub>CE</sub> = -30V, V <sub>EB(OFF)</sub> = -3.0V
Base Cutoff Current	I <sub>BL</sub>		-50	nA	V <sub>CE</sub> = -30V, V <sub>EB(OFF)</sub> = -3.0V
<b>ON CHARACTERISTICS (Note 7)</b>					
DC Current Gain (Note 8)	h <sub>FE</sub>	60 80 100 60 30	300		I <sub>C</sub> = -100μA, V <sub>CE</sub> = -1.0V I <sub>C</sub> = -1.0mA, V <sub>CE</sub> = -1.0V I <sub>C</sub> = -10mA, V <sub>CE</sub> = -1.0V I <sub>C</sub> = -50mA, V <sub>CE</sub> = -1.0V I <sub>C</sub> = -100mA, V <sub>CE</sub> = -1.0V
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>		-0.25 -0.40	V	I <sub>C</sub> = -10mA, I <sub>B</sub> = -1.0mA I <sub>C</sub> = -50mA, I <sub>B</sub> = -5.0mA
Base-Emitter Saturation Voltage	V <sub>BE(SAT)</sub>	-0.65	-0.85 -0.95	V	I <sub>C</sub> = -10mA, I <sub>B</sub> = -1.0mA I <sub>C</sub> = -50mA, I <sub>B</sub> = -5.0mA
<b>SMALL SIGNAL CHARACTERISTICS</b>					
Output Capacitance	C <sub>obo</sub>		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 <sub>EB</sub> = -0.5V, f = 1.0MHz, I <sub>C</sub> = 0
Input Impedance	h <sub>ie</sub>	2.0	12	k	V <sub>CE</sub> = 10V, I <sub>C</sub> = 1.0mA, f = 1.0kHz
Voltage Feedback Ratio	h <sub>re</sub>	0.1	10	x 10 <sup>-4</sup>	
Small Signal Current Gain	h <sub>fe</sub>	100	400		
Output Admittance	h <sub>oe</sub>	3.0	60	S	
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> = -100 A, R <sub>S</sub> = 1.0k f = 1.0kHz
<b>SWITCHING CHARACTERISTICS</b>					
Delay Time	t <sub>d</sub>		35	ns	V <sub>CC</sub> = -3.0V, I <sub>C</sub> = -10mA, V <sub>BE(off)</sub> = 0.5V, I <sub>B1</sub> = -1.0mA
Rise Time	t <sub>r</sub>		35	ns	
Storage Time	t <sub>s</sub>		225	ns	V <sub>CC</sub> = -3.0V, I <sub>C</sub> = -10mA, I <sub>B1</sub> = I <sub>B2</sub> = -1.0mA
Fall Time	t <sub>f</sub>		75	ns	

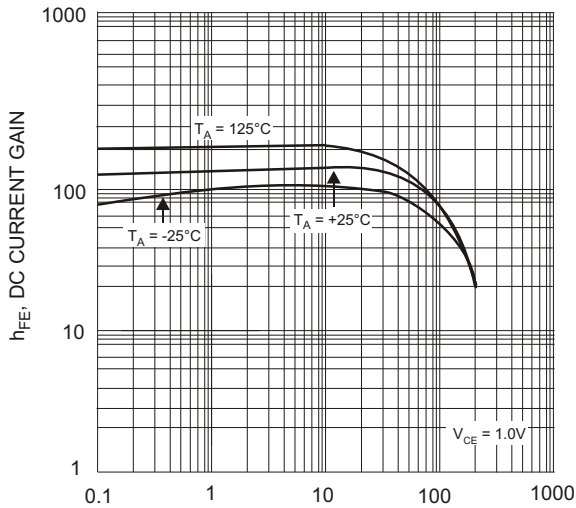
- Notes:
- Short duration pulse test used to minimize self-heating effect.
  - The DC current gain, h<sub>FE</sub>, is matched at I<sub>C</sub> = -10mA and V<sub>CE</sub> = -1.0V with typical matched tolerances of 1% and maximum of 2%.



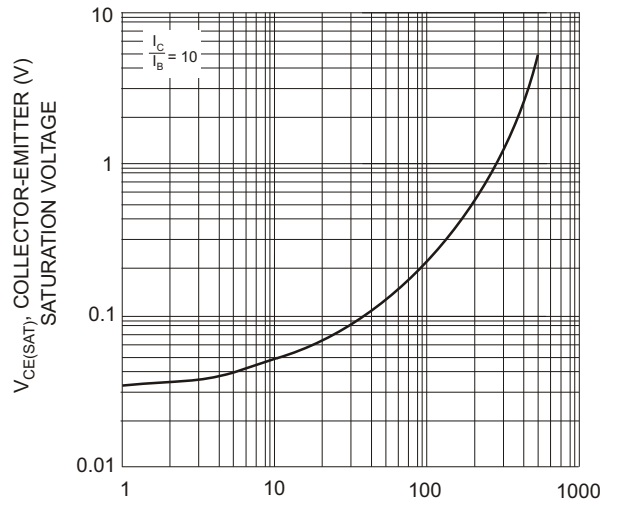
T<sub>A</sub>, AMBIENT TEMPERATURE (°C)  
Fig. 1, Max Power Dissipation vs Ambient Temperature, Total Device



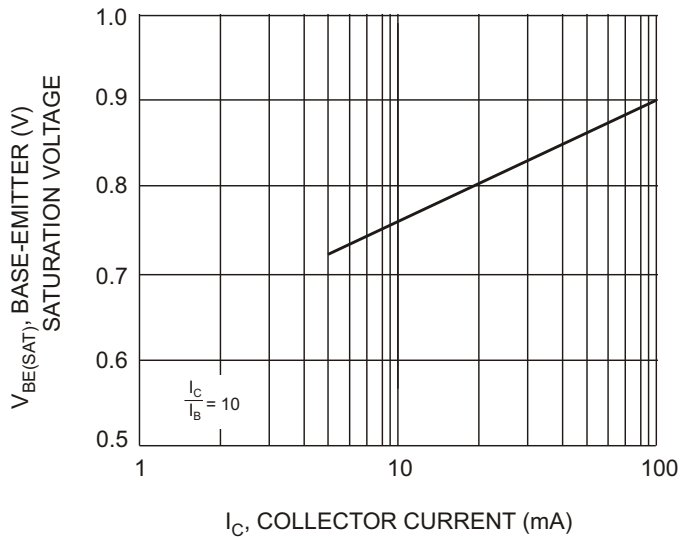
V<sub>CB</sub>, COLLECTOR-BASE VOLTAGE (V)  
Fig. 2, Input and Output Capacitance vs. Collector-Base Voltage



I<sub>C</sub>, COLLECTOR CURRENT (mA)  
Fig. 3, Typical DC Current Gain vs Collector Current



I<sub>C</sub>, COLLECTOR CURRENT (mA)  
Fig. 4, Typical Collector-Emitter Saturation Voltage vs. Collector Current



I<sub>C</sub>, COLLECTOR CURRENT (mA)  
Fig. 5, Typical Base-Emitter Saturation Voltage vs. Collector Current



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