



DMMT3906

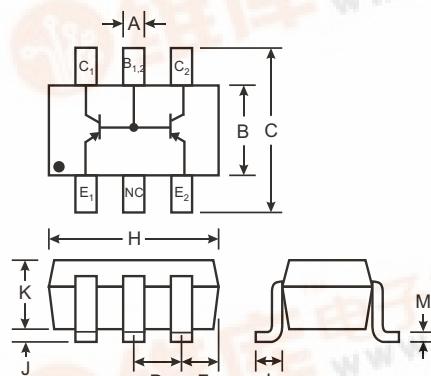
MATCHED PNP SMALL SIGNAL SURFACE MOUNT TRANSISTOR

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

@ $T_A = 25^\circ C$ 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

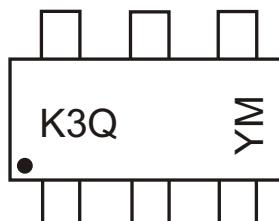
(Note 4 & 6)

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

Notes:

- Built with adjacent die from a single wafer.
- 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>.
- No purposefully added lead.
- For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
- 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 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	0	N	D

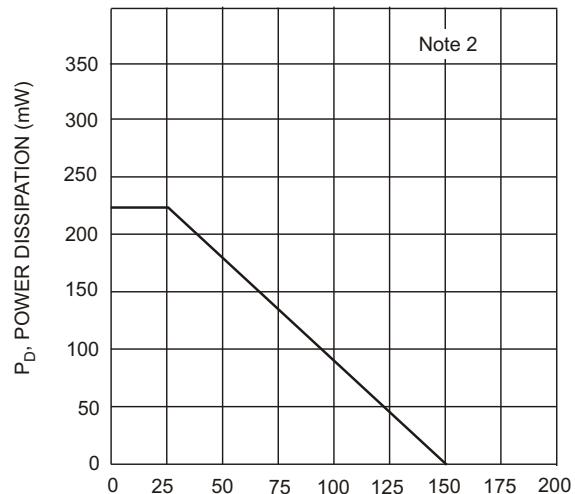
Electrical Characteristics

© $T_A = 25$ C unless otherwise specified

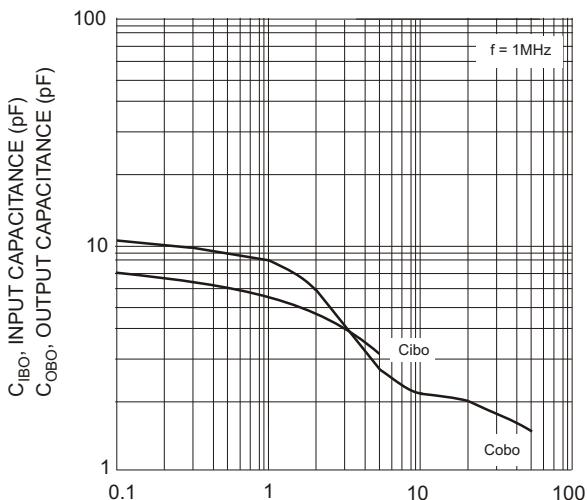
Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)					
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-40		V	$I_C = -10$ A, $I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-40		V	$I_C = -1.0mA$, $I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5.0		V	$I_E = -10$ A, $I_C = 0$
Collector Cutoff Current	I_{CEX}		-50	nA	$V_{CE} = -30V$, $V_{EB(OFF)} = -3.0V$
Base Cutoff Current	I_{BL}		-50	nA	$V_{CE} = -30V$, $V_{EB(OFF)} = -3.0V$
ON CHARACTERISTICS (Note 7)					
DC Current Gain (Note 8)	h_{FE}	60 80 100 60 30	300		$I_C = -100\mu A$, $V_{CE} = -1.0V$ $I_C = -1.0mA$, $V_{CE} = -1.0V$ $I_C = -10mA$, $V_{CE} = -1.0V$ $I_C = -50mA$, $V_{CE} = -1.0V$ $I_C = -100mA$, $V_{CE} = -1.0V$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$		-0.25 -0.40	V	$I_C = -10mA$, $I_B = -1.0mA$ $I_C = -50mA$, $I_B = -5.0mA$
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	-0.65	-0.85 -0.95	V	$I_C = -10mA$, $I_B = -1.0mA$ $I_C = -50mA$, $I_B = -5.0mA$
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C_{obo}		4.5	pF	$V_{CB} = -5.0V$, $f = 1.0MHz$, $I_E = 0$
Input Capacitance	C_{ibo}		10	pF	$V_{EB} = -0.5V$, $f = 1.0MHz$, $I_C = 0$
Input Impedance	h_{ie}	2.0	12	k	$V_{CE} = 10V$, $I_C = 1.0mA$, $f = 1.0kHz$
Voltage Feedback Ratio	h_{re}	0.1	10	$\times 10^{-4}$	
Small Signal Current Gain	h_{fe}	100	400		
Output Admittance	h_{oe}	3.0	60	S	
Current Gain-Bandwidth Product	f_T	250		MHz	$V_{CE} = -20V$, $I_C = -10mA$, $f = 100MHz$
Noise Figure	NF		4.0	dB	$V_{CE} = -5.0V$, $I_C = -100$ A, $R_S = 1.0k$ $f = 1.0kHz$
SWITCHING CHARACTERISTICS					
Delay Time	t_d		35	ns	$V_{CC} = -3.0V$, $I_C = -10mA$, $V_{BE(off)} = 0.5V$, $I_B1 = -1.0mA$
Rise Time	t_r		35	ns	
Storage Time	t_s		225	ns	
Fall Time	t_f		75	ns	

Notes: 7. Short duration pulse test used to minimize self-heating effect.

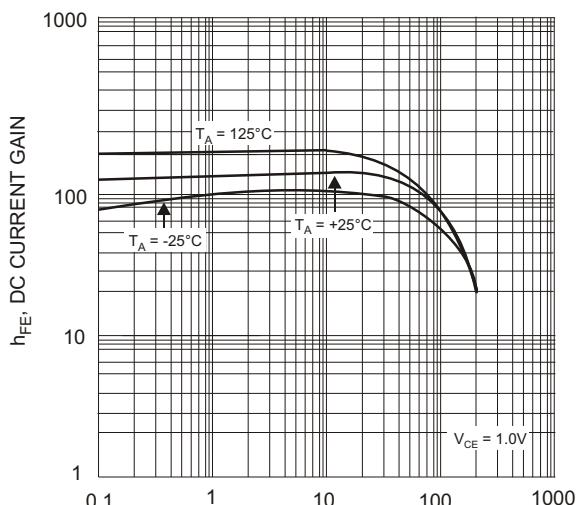
8. The DC current gain, h_{FE} , is matched at $I_C = -10mA$ and $V_{CE} = -1.0V$ with typical matched tolerances of 1% and maximum of 2%.



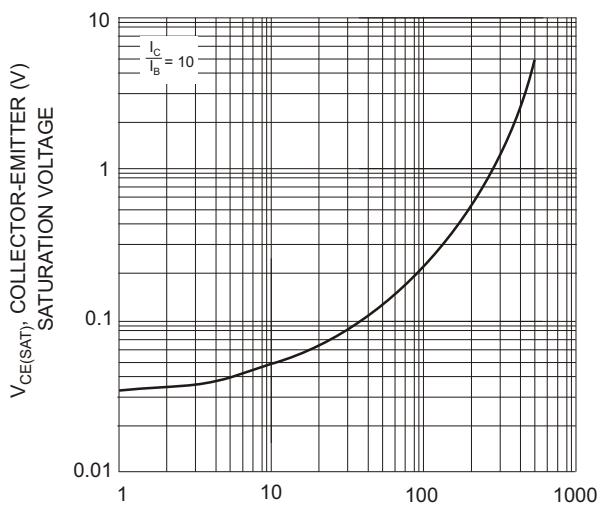
T_A , AMBIENT TEMPERATURE (°C)
Fig. 1, Max Power Dissipation vs
Ambient Temperature, Total Device



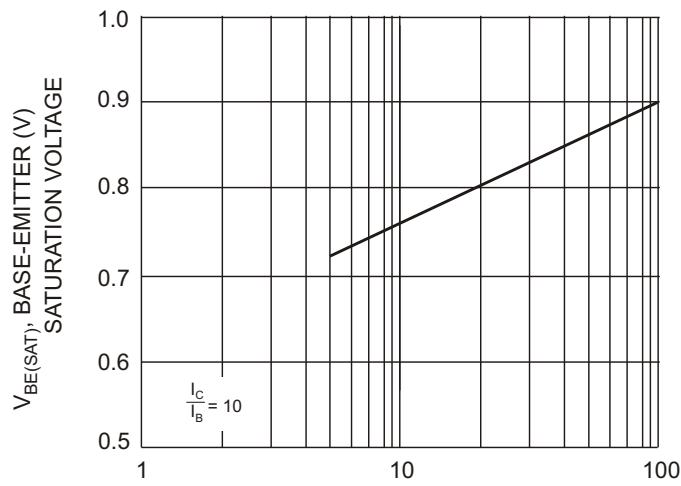
V_{CB} , COLLECTOR-BASE VOLTAGE (V)
Fig. 2, Input and Output Capacitance vs.
Collector-Base Voltage



I_C , COLLECTOR CURRENT (mA)
Fig. 3, Typical DC Current Gain vs
Collector Current



I_C , COLLECTOR CURRENT (mA)
Fig. 4, Typical Collector-Emitter Saturation Voltage
vs. Collector Current



I_C , COLLECTOR CURRENT (mA)
Fig. 5, Typical Base-Emitter
Saturation Voltage vs. Collector Current



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