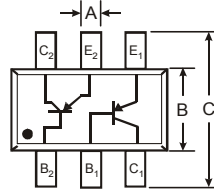


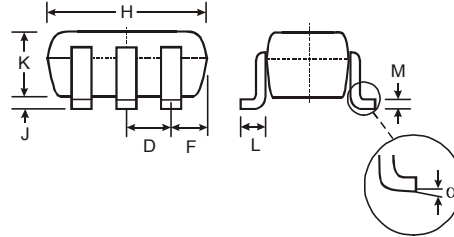
Features

- Epitaxial Planar Die Construction
- Intrinsically Matched PNP Pair (Note 1)
- Small Surface Mount Package
- 2% Matched Tolerance, h_{FE} , $V_{CE(SAT)}$, $V_{BE(SAT)}$
- **Lead Free/RoHS Compliant (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **"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: K4B, See Page 4
- Ordering & Date Code Information: See Page 4
- Weight: 0.015 grams (approximate)



SOT-363		
Dim	Min	Max
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
F	0.30	0.40
H	1.80	2.20
J	—	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.25
α	0°	8°
All Dimensions in mm		

Maximum Ratings @ $T_A = 25^\circ\text{C}$ 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 3)	P_d	200	mW
Thermal Resistance, Junction to Ambient (Note 3)	$R_{\theta JA}$	625	$^\circ\text{C/W}$
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. No purposefully added lead.
 3. 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>.
 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_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 6)						
Collector-Base Breakdown Voltage	V _{(BR)CBO}	-40	—	V	I _C = -10μA, 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 = -10μA, 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 6)						
DC Current Gain	(Note 7)	h _{FE}	60	—	—	I _C = -100μA, V _{CE} = -1.0V
			80	—		I _C = -1.0mA, V _{CE} = -1.0V
			100	300		I _C = -10mA, V _{CE} = -1.0V
			60	—		I _C = -50mA, V _{CE} = -1.0V
			30	—		I _C = -100mA, V _{CE} = -1.0V
Collector-Emitter Saturation Voltage	(Note 7)	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	(Note 7)	V _{BE(SAT)}	-0.65	-0.85 -0.95	V	I _C = -10mA, I _B = -1.0mA I _C = -50mA, I _B = -5.0mA
Base-Emitter Voltage Matching		ΔV _{BE}	—	-1	mV	V _{CE} = -5V, I _C = -2mA
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	kΩ	V _{CE} = 10V, I _C = 1.0mA, f = 1.0kHz	
Voltage Feedback Ratio	h _{re}	0.1	10	x 10 ⁻⁴		
Small Signal Current Gain	h _{fe}	100	400	—		
Output Admittance	h _{oe}	3.0	60	μS		
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 = -100μA, R _S = 1.0kΩ, f = 1.0kHz	
SWITCHING CHARACTERISTICS						
Delay Time	t _d	—	35	ns	V _{CC} = -3.0V, I _C = -10mA,	
Rise Time	t _r	—	35	ns	V _{BE(off)} = 0.5V, I _{B1} = -1.0mA	
Storage Time	t _s	—	225	ns	V _{CC} = -3.0V, I _C = -10mA,	
Fall Time	t _f	—	75	ns	I _{B1} = I _{B2} = -1.0mA	

- Notes: 6. Short duration pulse test used to minimize self-heating effect.
7. The DC current gain, h_{FE}, (matched at I_C = -10mA and V_{CE} = -1.0V) 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%.

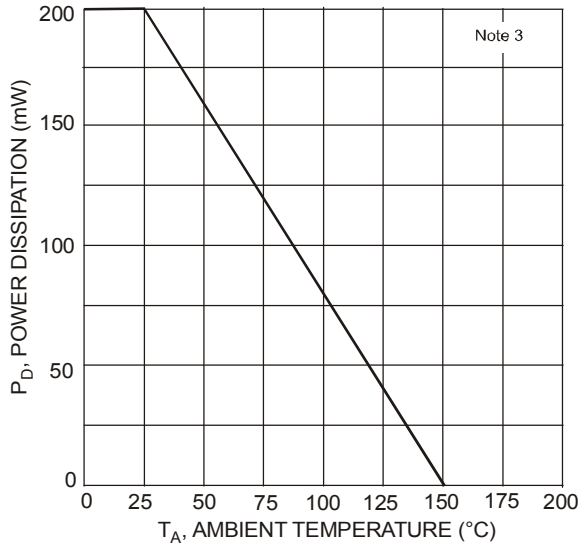


Fig. 1, Max Power Dissipation vs. Ambient Temperature

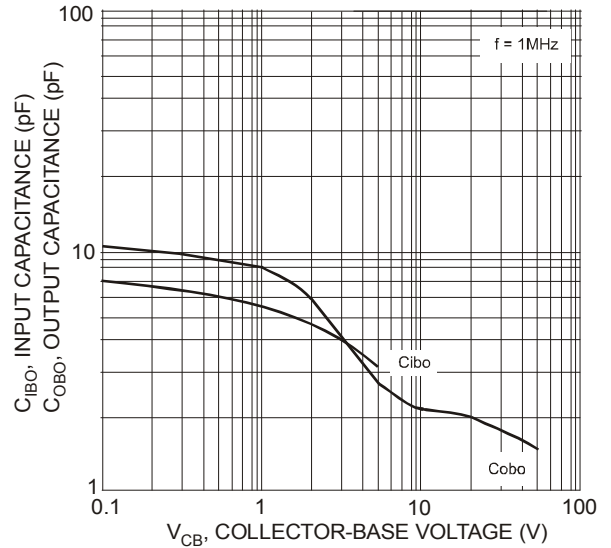


Fig. 2, Input and Output Capacitance vs. Collector-Base Voltage

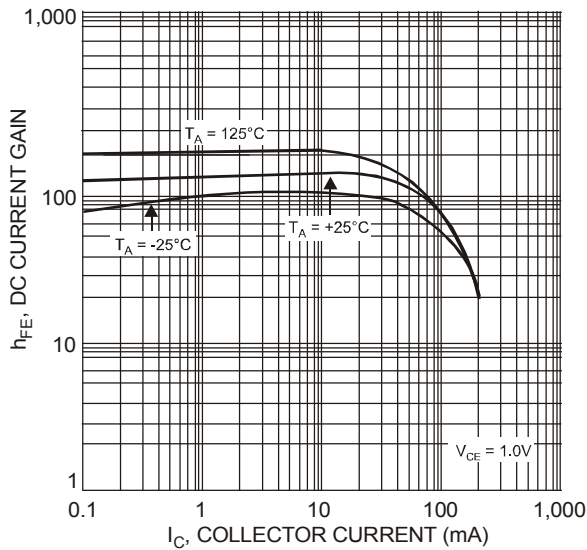


Fig. 3, Typical DC Current Gain vs. Collector Current

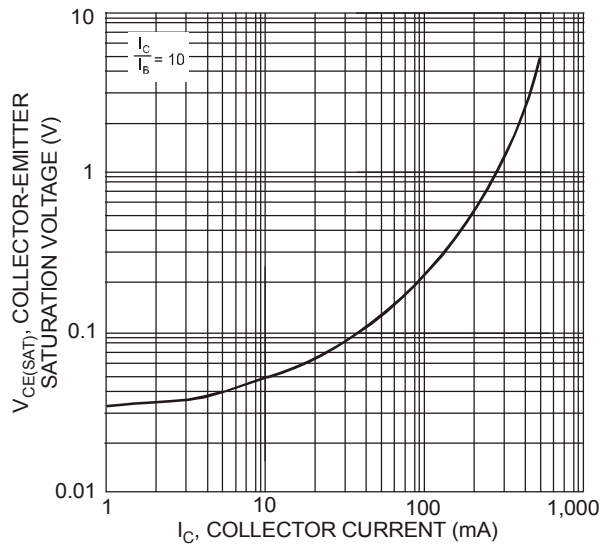


Fig. 4, Typical Collector-Emitter Saturation Voltage vs. Collector Current

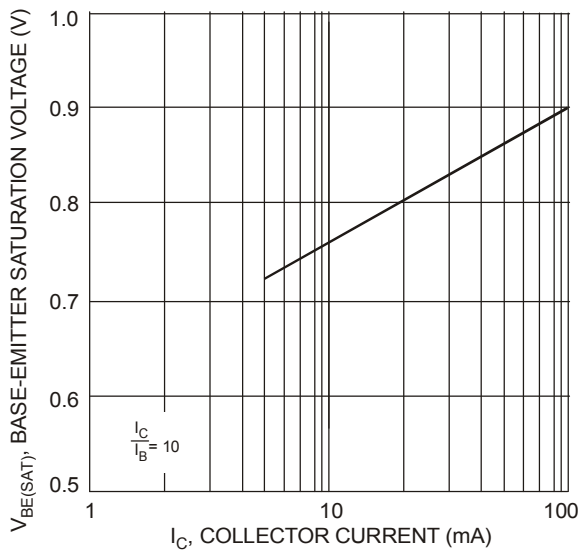


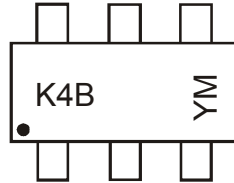
Fig. 5, Typical Base-Emitter Saturation Voltage vs. Collector Current

Ordering Information (Note 8)

Device	Packaging	Shipping
DMMT3906W-7-F	SOT-363	3000/Tape & Reel

Notes: 8. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



K4B = Product Type Marking Code
 YM = Date Code Marking
 Y = Year ex: T = 2006
 M = Month ex: 9 = September

Date Code Key

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	N	P	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

IMPORTANT NOTICE

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. Diodes Incorporated does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on our website, harmless against all damages.

LIFE SUPPORT

Diodes Incorporated products are not authorized for use as critical components in life support devices or systems without the expressed written approval of the President of Diodes Incorporated.