



MMDTA42

DUAL NPN SMALL SIGNAL SURFACE MOUNT TRANSISTOR

Features

- Epitaxial Planar Die Construction
- Ideal for Medium Power Amplification and Switching
- Lead Free/RoHS Compliant (Note 3)
- "Green" Device, Note 4 and 5

Mechanical Data

- Case: SOT-26
- Case Material: Molded Plastic, "Green" Molding Compound, Note 5. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminal Connections: See Diagram
- Terminals: Finish Matte Tin Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Copper leadframe).
- Marking Information: K3M, See Page 3
- Ordering & Date Code Information: See Page 3
- Weight: 0.008 grams (approximate)



SOT-26								
Dim	Min	Max	Тур					
Α	0.35	0.50	0.38					
В	1.50	1.70	1.60					
С	2.70	3.00	2.80					
D	_	_	0.95					
F	_	_	0.55					
н	2.90	3.10	3.00					
J	0.013	0.10	0.05					
К	1.00	1.00 1.30						
L	0.35	0.55	0.40					
М	0.10	0.20	0.15					
α	0°	8°						
All Dimensions in mm								

Characteristic	Symbol	Value	Unit		
Collector-Base Voltage	V _{CBO}	300	V		
Collector-Emitter Voltage	V _{CEO}	300	V		
Emitter-Base Voltage	V _{EBO}	6.0	V		
Collector Current (Note 1) (Note 2)	lc	500	mA		
Power Dissipation (Note 1)	Pd	300	mW		
Thermal Resistance, Junction to Ambient (Note 1)	R _{0JA}	417	°C/W		
Operating and Storage Temperature Range	T _j , T _{STG}	-55 to +150	°C		

Notes: 1. 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.

 When operated under collector-emitter saturation conditions within the safe operating area defined by the thermal resistance rating (R_{BJA}), power dissipation rating (P_d) and power derating curve (Figure 1).

3. No purposefully added lead.

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 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°C unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition				
OFF CHARACTERISTICS (Note 6)									
Collector-Base Breakdown Voltage	V _{(BR)CBO}	300	_	V	$I_{C} = 100 \mu A, I_{E} = 0$				
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	300	_	V	$I_{\rm C} = 1.0 {\rm mA}, I_{\rm B} = 0$				
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	6.0	_	V	$I_{\rm E} = 100 \mu A, I_{\rm C} = 0$				
Collector Cutoff Current	I _{CBO}	_	100	nA	$V_{CB} = 200V, I_E = 0$				
Collector Cutoff Current	I _{EBO}		100	nA	$V_{CE} = 6.0V, I_{C} = 0$				
ON CHARACTERISTICS (Note 6)					·				
DC Current Gain	hfe	25 40 40	_	_	$I_{C} = 1.0mA, V_{CE} = 10V$ $I_{C} = 10mA, V_{CE} = 10V$ $I_{C} = 30mA, V_{CE} = 10V$				
Collector-Emitter Saturation Voltage	V _{CE(SAT)}		0.5	V	$I_{\rm C} = 20$ mA, $I_{\rm B} = 2.0$ mA				
Base-Emitter Saturation Voltage	V _{BE(SAT)}		0.9	V	$I_{\rm C} = 20 {\rm mA}, I_{\rm B} = 2.0 {\rm mA}$				
SMALL SIGNAL CHARACTERISTICS									
Output Capacitance	C _{cb}	_	3.0	pF	$V_{CB} = 20V, f = 1.0MHz, I_E = 0$				
Current Gain-Bandwidth Product	f _T	50		MHz	$V_{CE} = 20V, I_C = 10mA, f = 100MHz$				

Notes: 6. Short duration pulse test used to minimize self-heating effect.









Ordering Information (Note 5 & 7)

Device	Packaging	Shipping		
MMDTA42-7-F	SOT-26	3000/Tape & Reel		

Notes: 7. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



 $\begin{array}{l} \text{K3M} = \text{Product Type Marking Code} \\ \text{YM} = \text{Date Code Marking} \\ \text{Y} = \text{Year ex: P} = 2003 \\ \text{M} = \text{Month ex: 9} = \text{September} \end{array}$

Date Code Key												
Year	2004	20	005	2006	2007	20	08	2009	2010	20	11	2012
Code	R	:	S	Т	U	Ň	/	W	Х	`	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

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