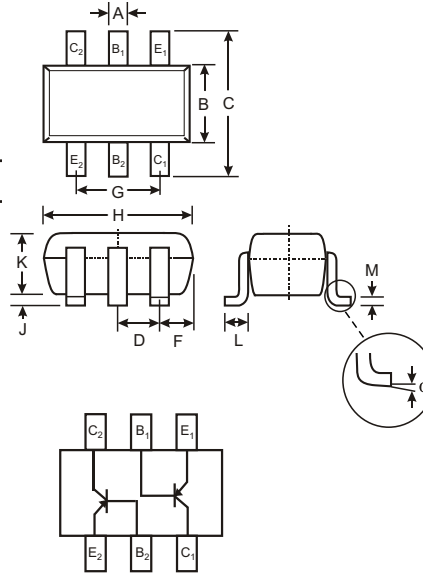


Features

- Epitaxial Planar Die Construction
- Ideal for Low Power Amplification and Switching
- Ultra-Small Surface Mount Package
- Lead Free/RoHS Compliant (Note 3)**

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 (See Page 2): K2T
- Ordering & Date Code Information: See Page 2
- Weight: 0.006 grams (approx.)



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
	0°	8°
All Dimensions in mm		

Maximum Ratings @ T_A = 25 C unless otherwise specified

Characteristic	Symbol	MMDT4403	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 (Note 1)	I _C	-600	mA
Power Dissipation (Note 1, 2)	P _d	200	mW
Thermal Resistance, Junction to Ambient (Note 1)	R _{JA}	625	C/W
Operating and Storage and 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>.
 2. Maximum combined dissipation.
 3. No purposefully added lead.

Electrical Characteristics @ T_A = 25 °C unless otherwise specified

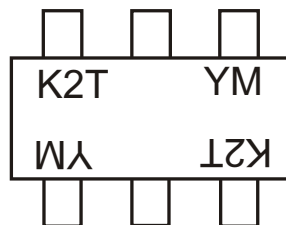
Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 4)					
Collector-Base Breakdown Voltage	V _{(BR)CBO}	-40		V	I _C = -100 A, I _E = 0
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	-40		V	I _C = -1.0mA, I _B = 0
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	-5.0		V	I _E = -100 A, I _C = 0
Collector Cutoff Current	I _{CEX}		-100	nA	V _{CE} = -35V, V _{EB(OFF)} = -0.4V
Base Cutoff Current	I _{BL}		-100	nA	V _{CE} = -35V, V _{EB(OFF)} = -0.4V
ON CHARACTERISTICS (Note 4)					
DC Current Gain	h _{FE}	30 60 100 100 20	300		I _C = -100μA, V _{CE} = -1.0V I _C = -1.0mA, V _{CE} = -1.0V I _C = -10mA, V _{CE} = -1.0V I _C = -150mA, V _{CE} = -2.0V I _C = -500mA, V _{CE} = -2.0V
Collector-Emitter Saturation Voltage	V _{CE(SAT)}		-0.40 -0.75	V	I _C = -150mA, I _B = -15mA I _C = -500mA, I _B = -50mA
Base-Emitter Saturation Voltage	V _{BE(SAT)}	-0.75	-0.95 -1.30	V	I _C = -150mA, I _B = -15mA I _C = -500mA, I _B = -50mA
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C _{cb}		8.5	pF	V _{CB} = -10V, f = 1.0MHz, I _E = 0
Input Capacitance	C _{eb}		30	pF	V _{EB} = -0.5V, f = 1.0MHz, I _C = 0
Input Impedance	h _{ie}	1.5	15	k	V _{CE} = -10V, I _C = -1.0mA, f = 1.0kHz
Voltage Feedback Ratio	h _{re}	0.1	8.0	x 10 ⁻⁴	
Small Signal Current Gain	h _{fe}	60	500		
Output Admittance	h _{oe}	1.0	100	S	
Current Gain-Bandwidth Product	f _T	200		MHz	V _{CE} = -10V, I _C = -20mA, f = 100MHz
SWITCHING CHARACTERISTICS					
Delay Time	t _d		15	ns	V _{CC} = -30V, I _C = -150mA, V _{BE(off)} = -2.0V, I _{B1} = -15mA
Rise Time	t _r		20	ns	
Storage Time	t _s		225	ns	V _{CC} = -30V, I _C = -150mA, I _{B1} = I _{B2} = -15mA
Fall Time	t _f		30	ns	

Ordering Information (Note 5)

Device	Packaging	Shipping
MMDT4403-7-F	SOT-363	3000/Tape & Reel

- Notes: 4. Short duration test pulse used to minimize self-heating effect.
5. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information

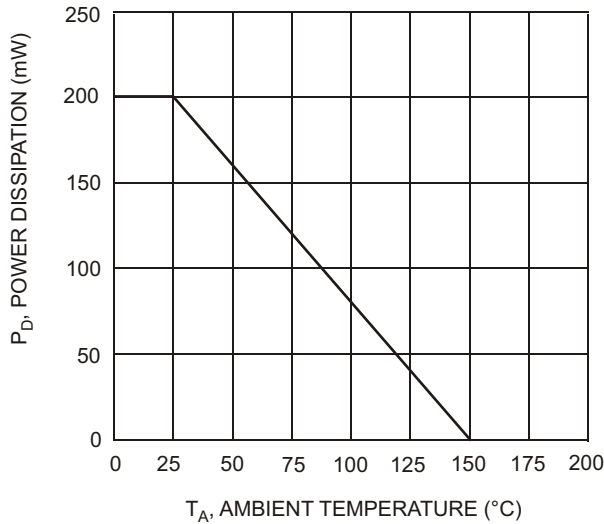


K2T= Product Type Marking Code
YM = Date Code Marking
Y = Year ex: N = 2002
M = Month ex: 9 = September

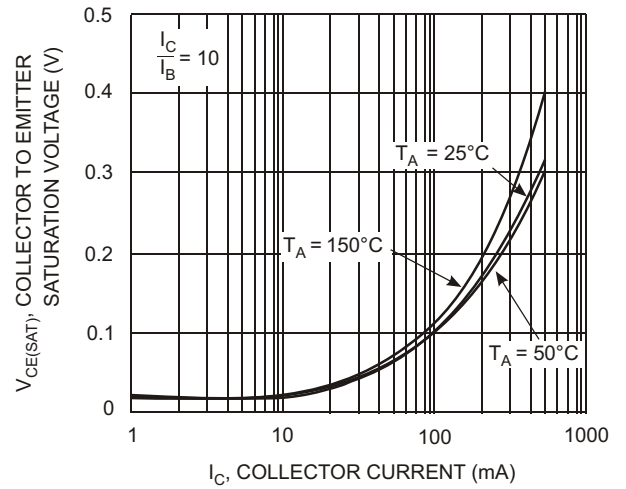
Date Code Key

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Code	J	K	L	M	N	P	R	S	T	U	V	W

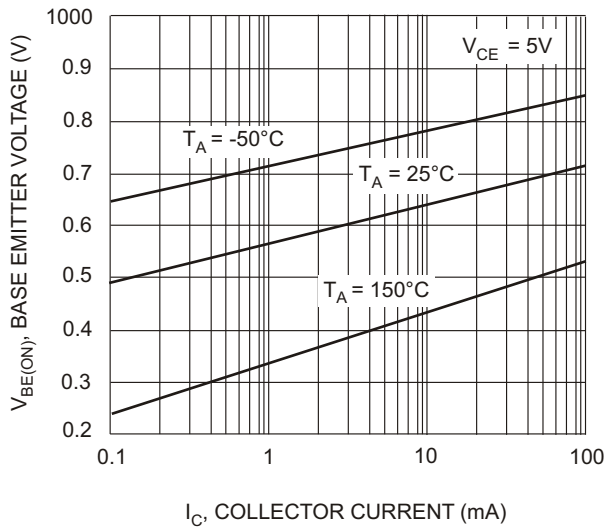
Month	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D



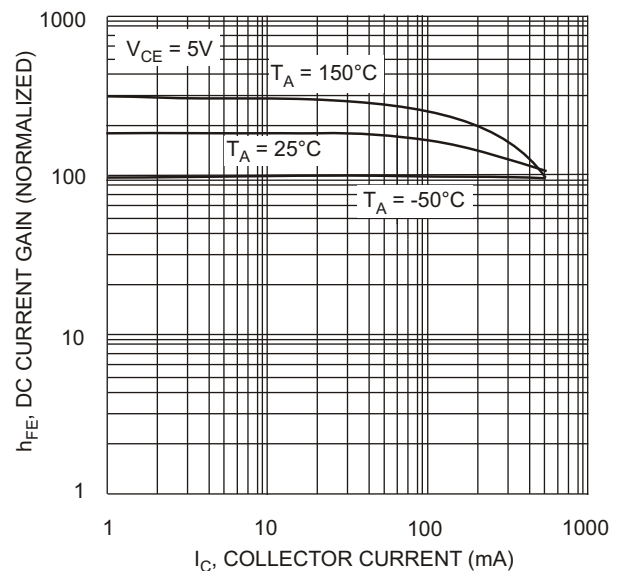
T_A , AMBIENT TEMPERATURE ($^{\circ}\text{C}$)
Fig. 1, Max Power Dissipation vs Ambient Temperature



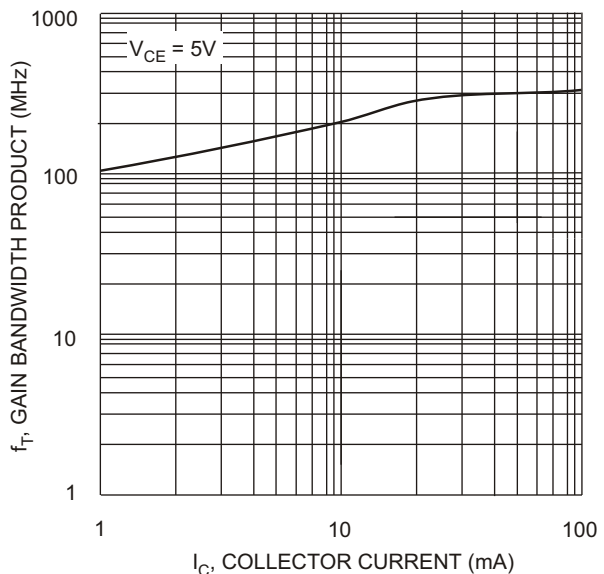
I_C , COLLECTOR CURRENT (mA)
Fig. 2 Collector Emitter Saturation Voltage vs. Collector Current



I_C , COLLECTOR CURRENT (mA)
Fig. 3 Base-Emitter Voltage vs. Collector Current



I_C , COLLECTOR CURRENT (mA)
Fig. 4 DC Current Gain vs. Collector Current



I_C , COLLECTOR CURRENT (mA)
Fig. 5 Gain Bandwidth Product vs. Collector Current

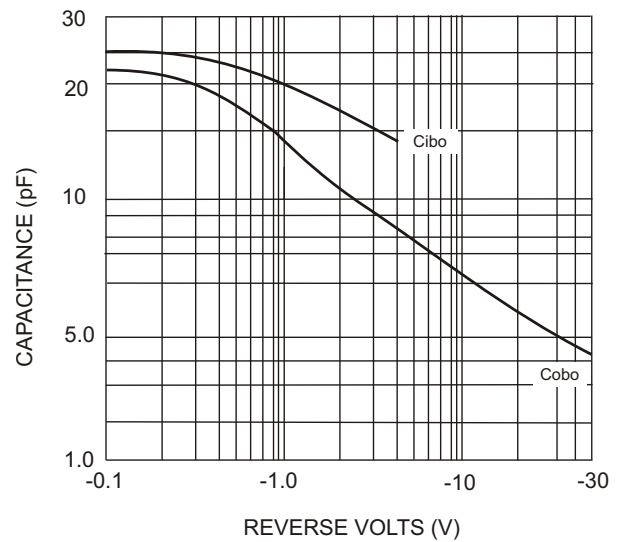


Fig. 6 Typical Capacitance

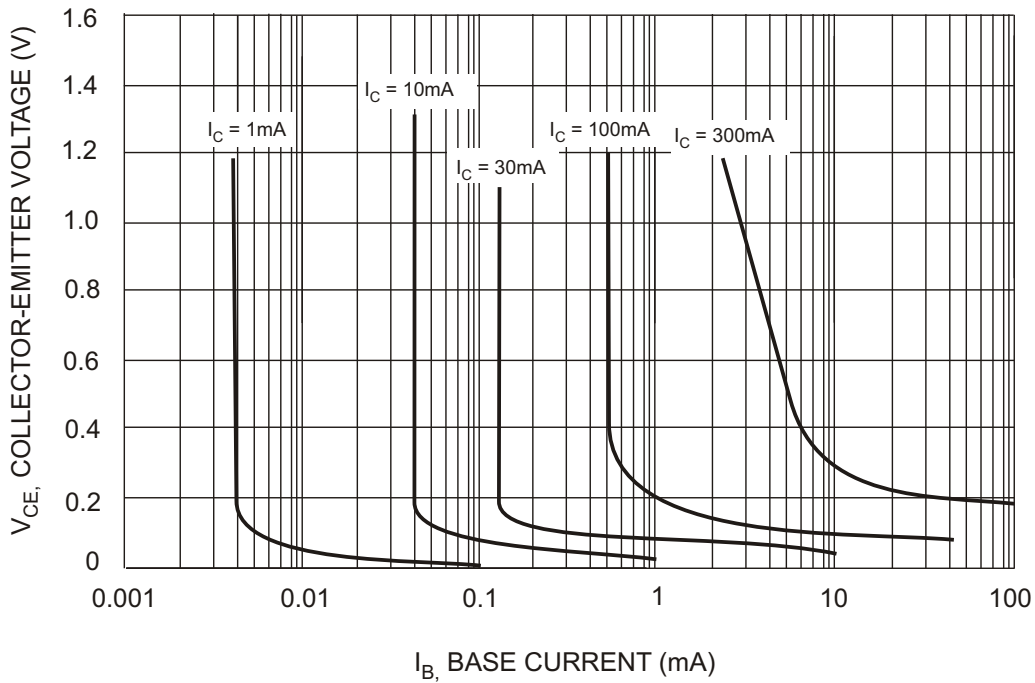


Fig. 7 Typical Collector Saturation Region

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