

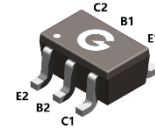
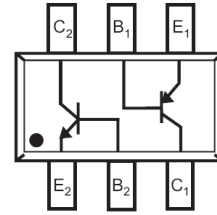
Features

- Complementary pair
- Ideal for low power amplification and switching
- Ultra-Small surface mount package
- Epitaxial planar die construction

HF

Mechanical Data

- Case: SOT-363
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208



SOT-363

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
MMDT5451	SOT-363	3000 pcs / Tape & Reel	KNM

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	NPN	PNP	Unit
Collector-Base Voltage	V _{CBO}	180	-160	V
Collector-Emitter Voltage	V _{CEO}	160	-150	V
Emitter-Base Voltage	V _{EBO}	6	-5	V
Collector Current (Continuous)	I _C	0.2	-0.2	A
Collector Current (Peak)	I _{CM}	0.4	-0.4	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation	P _D	0.2	W
Thermal Resistance Junction-to-Air	R _{θJA}	625	°C/W
Thermal Resistance Junction-to-Air ^{*1}	R _{θJA}	324	°C/W
Thermal Resistance Junction-to-Case ^{*1}	R _{θJC}	196	°C/W
Thermal Resistance Junction-to-Lead ^{*1}	R _{θJL}	214	°C/W
Junction Temperature Range	T _J	-55 ~ +150	°C
Storage Temperature Range	T _{STG}	-55 ~ +150	°C

Note 1: The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper

Electrical Characteristics-N (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	V _{(BR)CBO}	I _C = 100μA, I _E = 0	180	-	-	V
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C = 1mA, I _B = 0	160	-	-	V
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	I _E = 10μA, I _C = 0	6	-	-	V
Collector Cut-off Current	I _{CBO}	V _{CB} = 120V, I _E = 0	-	-	50	nA
Emitter Cut-off Current	I _{EBO}	V _{EB} = 4V, I _C = 0	-	-	50	nA
DC Current Gain	h _{FE}	V _{CE} = 5V, I _C = 1mA	80	-	-	-
		V _{CE} = 5V, I _C = 10mA	100	-	300	-
		V _{CE} = 5V, I _C = 50mA	30	-	-	-
Collector-emitter Saturation Voltage	V _{CE(sat)}	I _C = 10mA, I _B = 1mA	-	-	0.15	V
		I _C = 50mA, I _B = 5mA	-	-	0.2	V
Base-emitter Saturation Voltage	V _{BE(sat)}	I _C = 10mA, I _B = 1mA	-	-	1	V
		I _C = 50mA, I _B = 5mA	-	-	1	V
Collector-base Output Capacitance	C _{cbo}	V _{CB} = 10V, f = 1MHz, I _E = 0	-	-	6	pF
Current-Gain— Bandwidth Product	f _T	I _C = 10mA, V _{CE} = 10V f = 100MHz	100	-	300	MHz

Electrical Characteristics-P (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	V _{(BR)CBO}	I _C = -100μA, I _E = 0	-160	-	-	V
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C = -1mA, I _B = 0	-150	-	-	V
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	I _E = -10μA, I _C = 0	-5	-	-	V
Collector Cut-off Current	I _{CBO}	V _{CB} = -120V, I _E = 0	-	-	-50	nA
Emitter Cut-off Current	I _{EBO}	V _{EB} = -3V, I _C = 0	-	-	-50	nA
DC Current Gain	h _{FE}	V _{CE} = -5V, I _C = -1mA	50	-	-	-
		V _{CE} = -5V, I _C = -10mA	60	-	240	-
		V _{CE} = -5V, I _C = -50mA	50	-	-	-
Collector-emitter Saturation Voltage	V _{CE(sat)}	I _C = -10mA, I _B = -1mA	-	-	-0.2	V
		I _C = -50mA, I _B = -5mA	-	-	-0.5	V
Base-emitter Saturation Voltage	V _{BE(sat)}	I _C = -10mA, I _B = -1mA	-	-	-1	V
		I _C = -50mA, I _B = -5mA	-	-	-1	V
Collector-base Output Capacitance	C _{cbo}	V _{CB} = -10V, f = 1MHz, I _E = 0	-	-	6	pF
Current-Gain— Bandwidth Product	f _T	I _C = -10mA, V _{CE} = -10V f = 100MHz	100	-	300	MHz

Ratings and Characteristics Curves-N (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

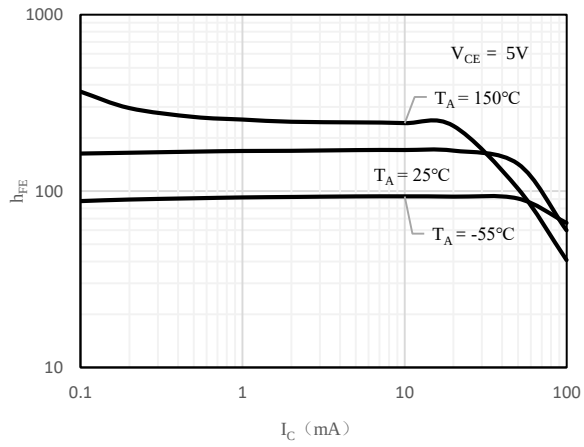


Fig 1 h_{FE} vs. I_C

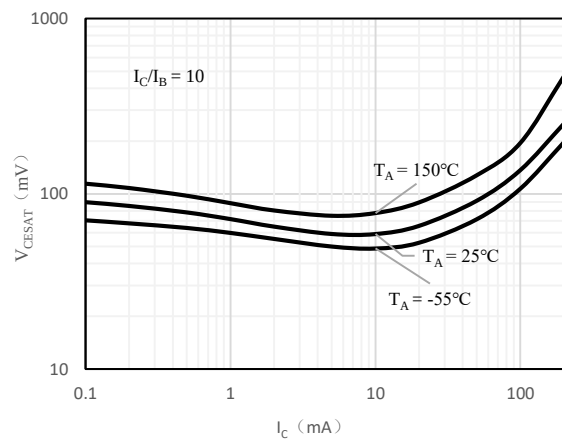


Fig 2 $V_{CE(sat)}$ vs. I_C

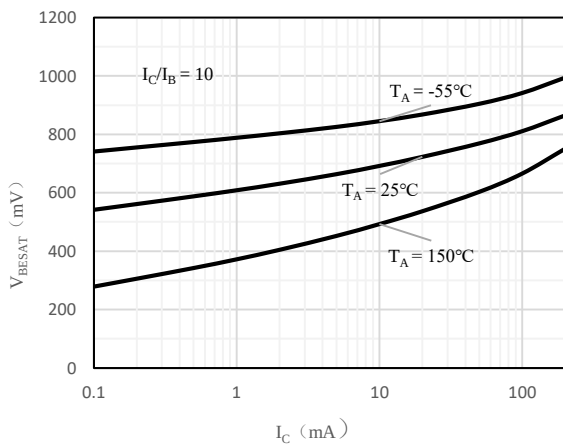


Fig 3 $V_{BE(sat)}$ vs. I_C

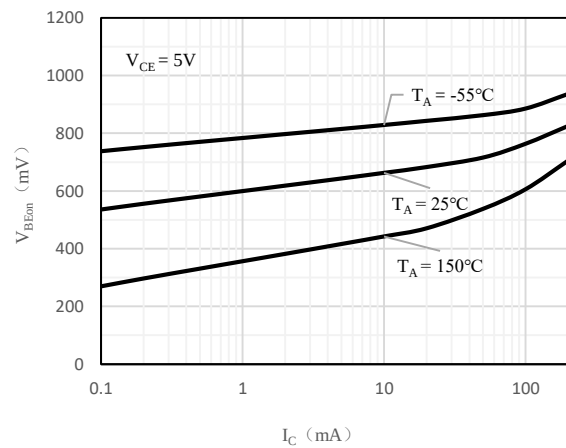


Fig 4 $V_{BE(on)}$ vs. I_C

Ratings and Characteristics Curves-P (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

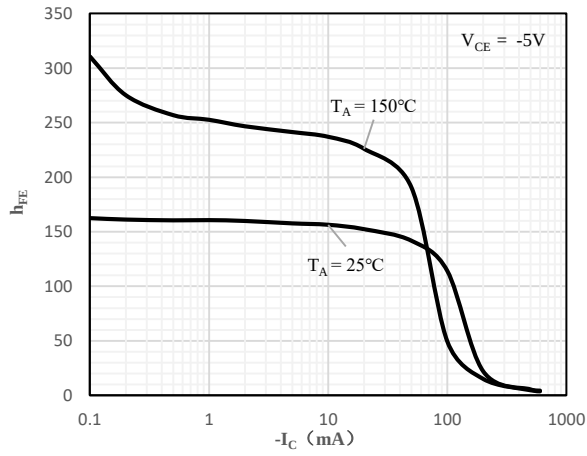


Fig 1 h_{FE} vs. I_C

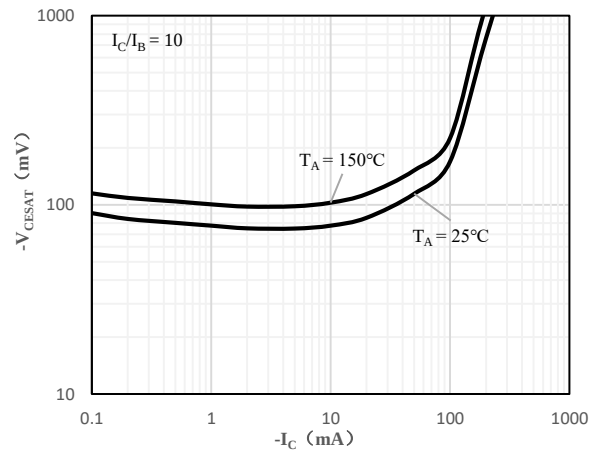


Fig 2 $V_{CE(sat)}$ vs. I_C

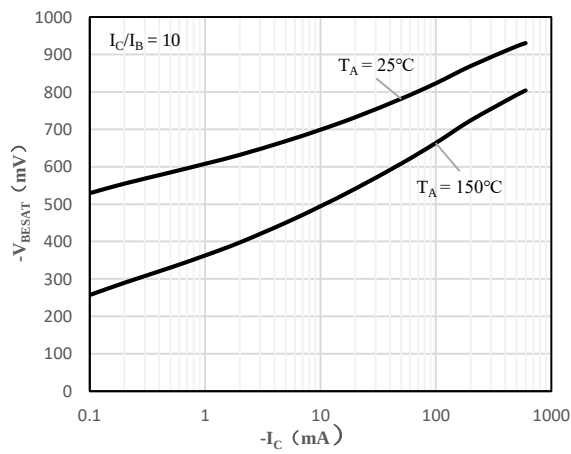


Fig 3 $V_{BE(sat)}$ vs. I_C

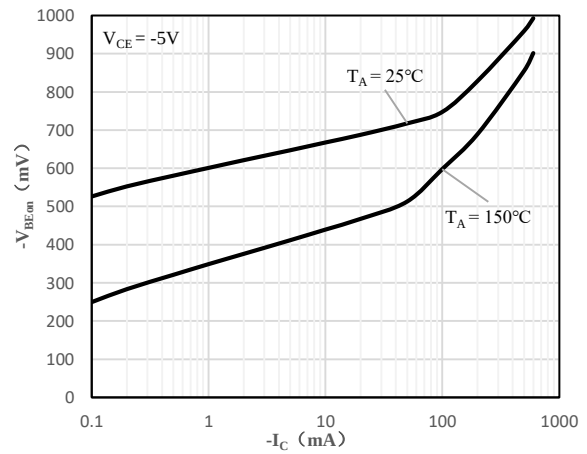
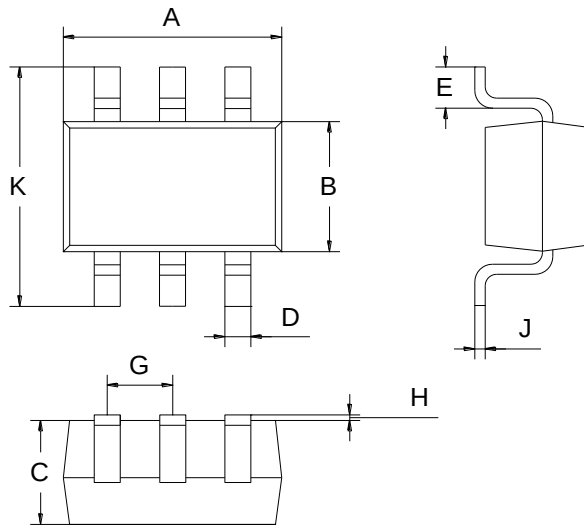


Fig 4 $V_{BE(on)}$ vs. I_C

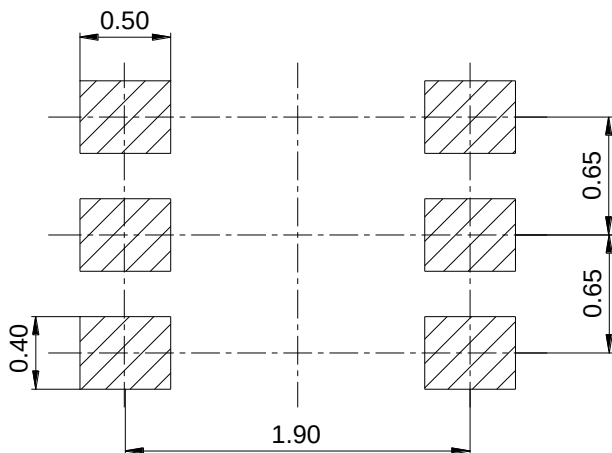
Package Outline Dimensions (Unit: mm)



SOT-363		
Dimension	Min.	Max.
A	2.00	2.20
B	1.15	1.35
C	0.85	1.05
D	0.15	0.35
E	0.25	0.40
G	0.60	0.70
H	0.02	0.10
J	0.05	0.15
K	2.20	2.40

Mounting Pad Layout (Unit: mm)

SOT-363



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