

Plastic-Encapsulate Transistors

DUAL TRANSISTOR (NPN+NPN)

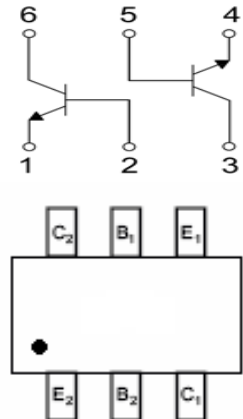
FEATURE

Complementary PNP Type available MMDT2907AV

MARKING: KAT JD

MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	75	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current -Continuous	600	mA
P_C	Collector Power Dissipation	200	mW
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-55-150	$^\circ\text{C}$



SOT-563

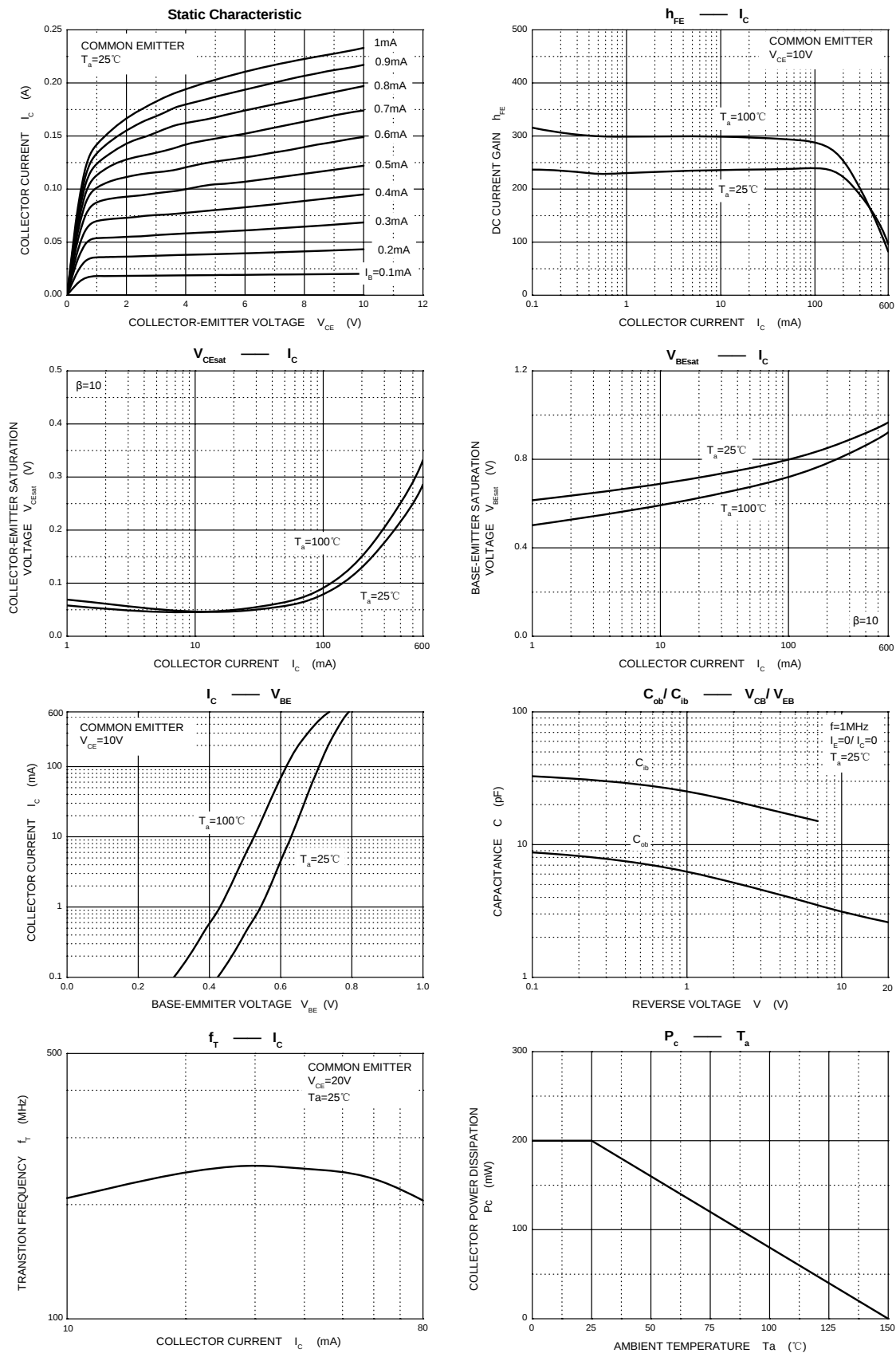
ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_E = 0$	75		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0$	40		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	6		V
Collector cut-off current	I_{CBO}	$V_{CB} = 60\text{V}, I_E = 0$		10	nA
Collector cut-off current	I_{CEX}	$V_{CE} = 60\text{V}, V_{EB(off)} = 3\text{V}$		10	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = 3\text{V}, I_C = 0$		10	nA
DC current gain	$h_{FE(1)}$	$V_{CE} = 10\text{V}, I_C = 0.1\text{mA}$	35		
	$h_{FE(2)}$	$V_{CE} = 10\text{V}, I_C = 1\text{mA}$	50		
	$h_{FE(3)}$	$V_{CE} = 10\text{V}, I_C = 10\text{mA}$	75		
	$h_{FE(4)}$	$V_{CE} = 10\text{V}, I_C = 150\text{mA}$	100	300	
	$h_{FE(5)}$	$V_{CE} = 10\text{V}, I_C = 500\text{mA}$	40		
	$h_{FE(6)}$	$V_{CE} = 1\text{V}, I_C = 150\text{mA}$	35		
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C = 150\text{mA}, I_B = 15\text{mA}$		0.3	V
	$V_{CE(sat)2}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$		1	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	$I_C = 150\text{mA}, I_B = 15\text{mA}$	0.6	1.2	V
	$V_{BE(sat)2}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$		2	V
Transition frequency	f_T	$V_{CE} = 20\text{V}, I_C = 20\text{mA}, f = 100\text{MHz}$	300		MHz
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$		8	pF
Input Capacitance	C_{ib}	$V_{EB} = 0.5\text{V}, I_C = 0, f = 1\text{MHz}$		25	pF
Noise Figure	NF	$V_{CE} = 10\text{V}, I_C = 100\mu\text{A}, f = 1\text{KHz}, R_s = 1\text{K}\Omega$		4	dB

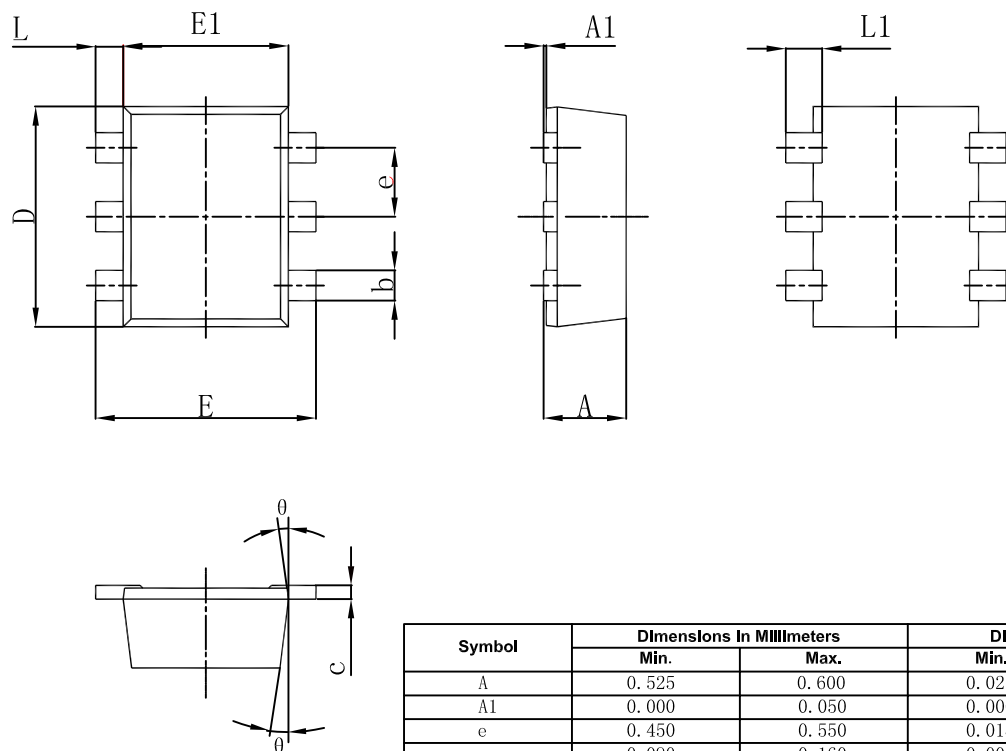
Switching characteristics

Parameter	Symbol	Test conditions	Min	Max	Unit
Delay time	t_d	$V_{CC} = 30\text{V}, I_C = 150\text{mA}, V_{BE(off)} = 0.5\text{V}, I_{B1} = 15\text{mA}$		10	nS
Rise time	t_r			25	nS
Storage time	t_s	$V_{CC} = 30\text{V}, I_C = 150\text{mA}, I_{B1} = -I_{B2} = 15\text{mA}$		225	nS
Fall time	t_f			60	nS

Typical Characteristics

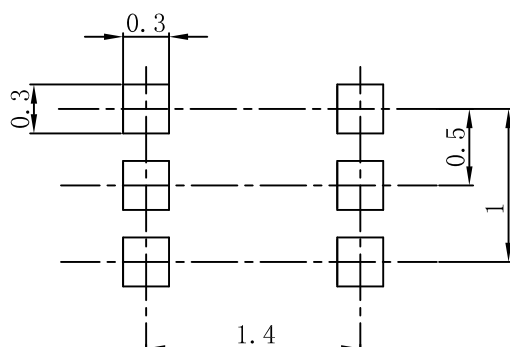


SOT-563 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.525	0.600	0.021	0.024
A1	0.000	0.050	0.000	0.002
e	0.450	0.550	0.018	0.022
c	0.090	0.160	0.004	0.006
D	1.500	1.700	0.059	0.067
b	0.170	0.270	0.007	0.011
E1	1.100	1.300	0.043	0.051
E	1.500	1.700	0.059	0.067
L	0.100	0.300	0.004	0.012
L1	0.200	0.400	0.008	0.016
θ	7° REF.		7° REF.	

SOT-563 Suggested Pad Layout



Note:
 1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.