



### NPN/PNP Duals

These transistors are designed for general purpose amplifier applications. They are housed in the SOT-363 which is designed for low power surface mount applications.

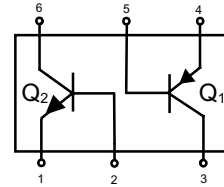
### FEATURES

- Ideally suited for automatic insertion
- For switching and AF amplifier applications
- Complementary Pair: MMBT5551 Type NPN / MMBT5401 Type PNP

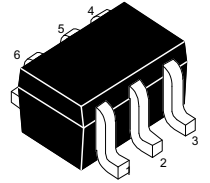
### PINNING

PIN	DESCRIPTION
1/4	EMITTER
2/5	BASE
3/6	COLLECTOR

Internal Structure



SOT-363



### THERMAL CHARACTERISTICS

Parameter	Symbol	Value	Unit
Collector Power Dissipation Board 25°C	PD	200	mW
Thermal Resistance, Junction to Ambient	R $\theta$ JA	625	mW°C
Operation Junction and Storage Temperature Range	TJ , Tstg	-55~ +150	°C

### NPN MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CB0</sub>	180	V
Collector-Emitter Voltage	V <sub>CE0</sub>	160	V
Emitter-Base Voltage	V <sub>EB0</sub>	6	V
Collector Current — Continuous	I <sub>c</sub>	600	mA

### PNP MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CB0</sub>	-160	V
Collector-Emitter Voltage	V <sub>CE0</sub>	-150	V
Emitter-Base Voltage	V <sub>EB0</sub>	-5	V
Collector Current — Continuous	I <sub>c</sub>	-0.6	A



**NPN ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted.)**

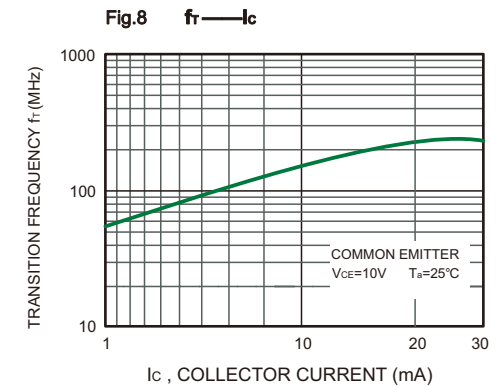
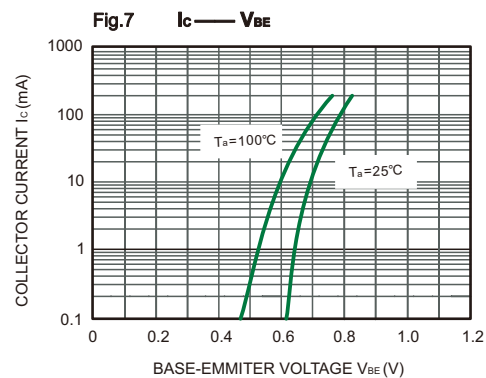
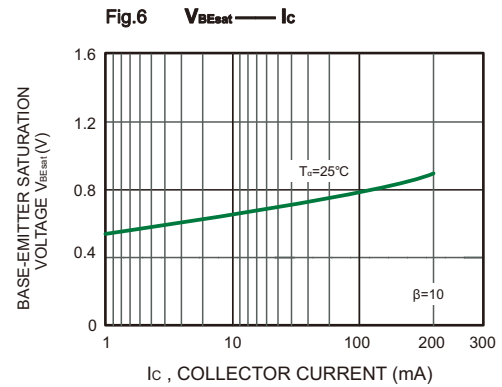
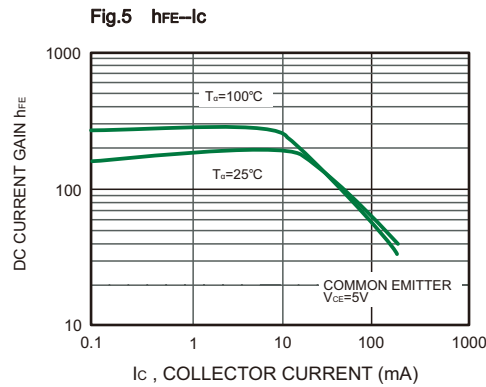
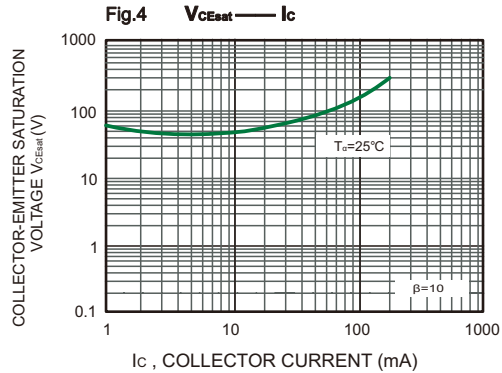
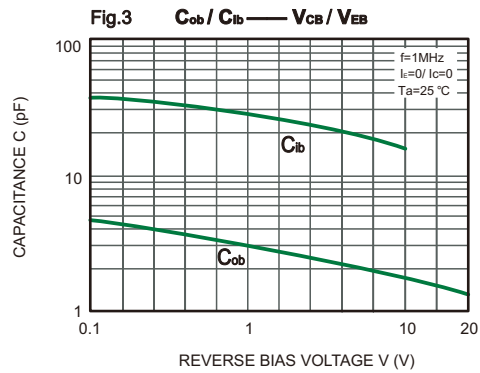
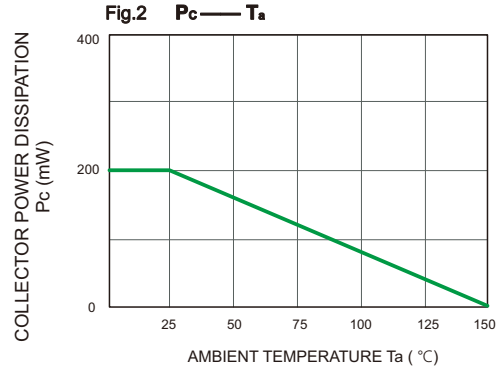
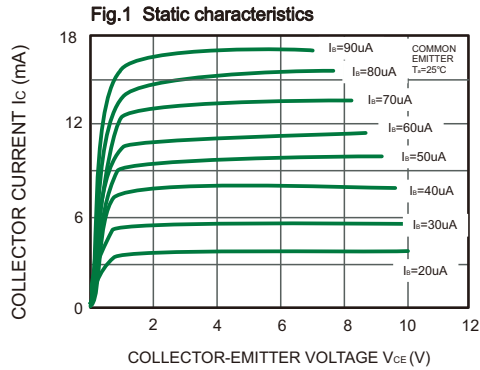
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 100\mu A, I_E = 0$	180			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 1\text{ mA}, I_B = 0$	160			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 10\mu A, I_C = 0$	6			V
Collector 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	$h_{FE1}$	$V_{CE} = 5V, I_C = 1\text{mA}$	80			
	$h_{FE2}$	$V_{CE} = 5V, I_C = 10\text{mA}$	100		300	
	$h_{FE3}$	$V_{CE} = 5V, I_C = 50\text{mA}$	50			
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C = 10\text{mA}, I_B = 1\text{mA}$			0.15	V
	$V_{CE(sat)2}$	$I_C = 50\text{mA}, I_B = 5\text{mA}$			0.2	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	$I_C = 10\text{mA}, I_B = 1\text{mA}$			1	V
	$V_{BE(sat)2}$	$I_C = 50\text{mA}, I_B = 5\text{mA}$			1	V
Transition frequency	$f_T$	$V_{CE} = 10V, I_C = 10\text{mA}, f = 100\text{MHz}$	100		300	MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = 10V, I_E = 0, f = 1\text{MHz}$			6	pF

**PNP ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted.)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -100\mu A, I_E = 0$	-160			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -1\text{ mA}, I_B = 0$	-150			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -10\mu A, I_C = 0$	-5			V
Collector cut-off current	$I_{CBO}$	$V_{CB} = -120V, I_E = 0$			-0.1	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -4V, I_C = 0$			-0.1	$\mu A$
DC current gain	$h_{FE1}$	$V_{CE} = -5V, I_C = -1\text{mA}$	80			
	$h_{FE2}$	$V_{CE} = -5V, I_C = -10\text{mA}$	100		300	
	$h_{FE3}$	$V_{CE} = -5V, I_C = -50\text{mA}$	50			
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C = -10\text{mA}, I_B = -1\text{mA}$			-0.2	V
	$V_{CE(sat)2}$	$I_C = -50\text{mA}, I_B = -5\text{mA}$			-0.5	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	$I_C = -10\text{mA}, I_B = -1\text{mA}$			-1	V
	$V_{BE(sat)2}$	$I_C = -50\text{mA}, I_B = -5\text{mA}$			-1	V
Transition frequency	$f_T$	$V_{CE} = -25V, I_C = -10\text{mA}, f = 30\text{MHz}$	100			MHz

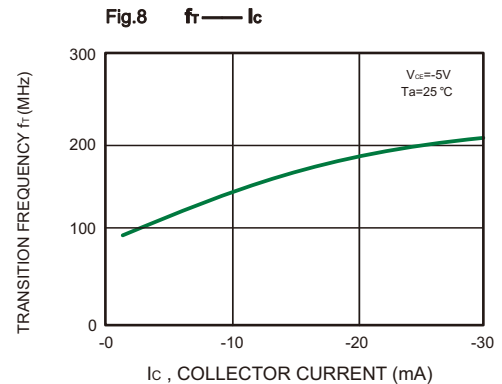
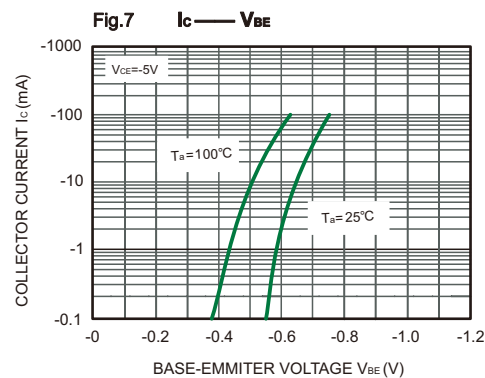
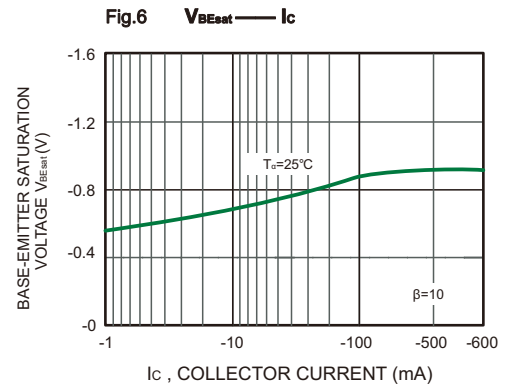
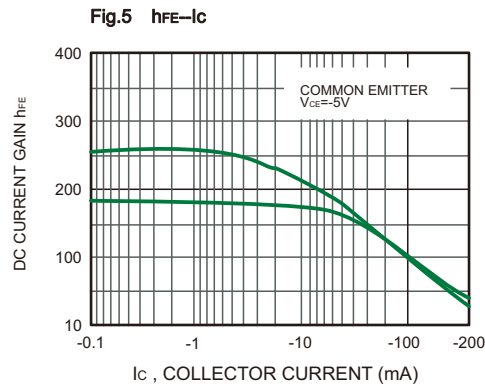
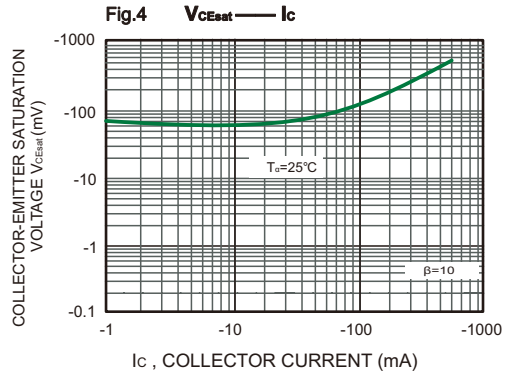
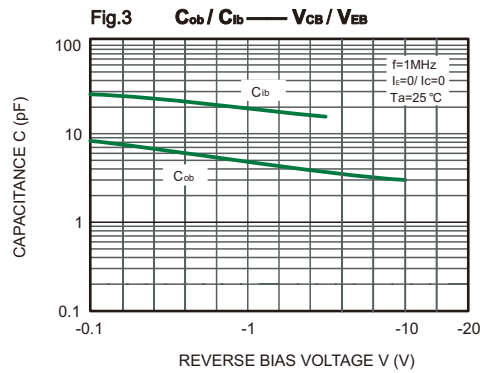
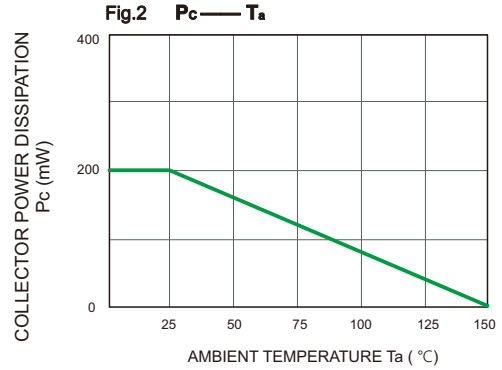
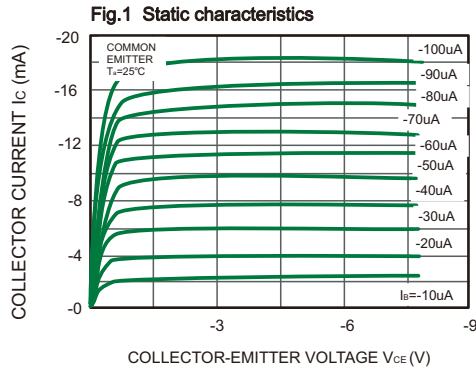


### NPN-TYPICAL CHARACTERISTICS



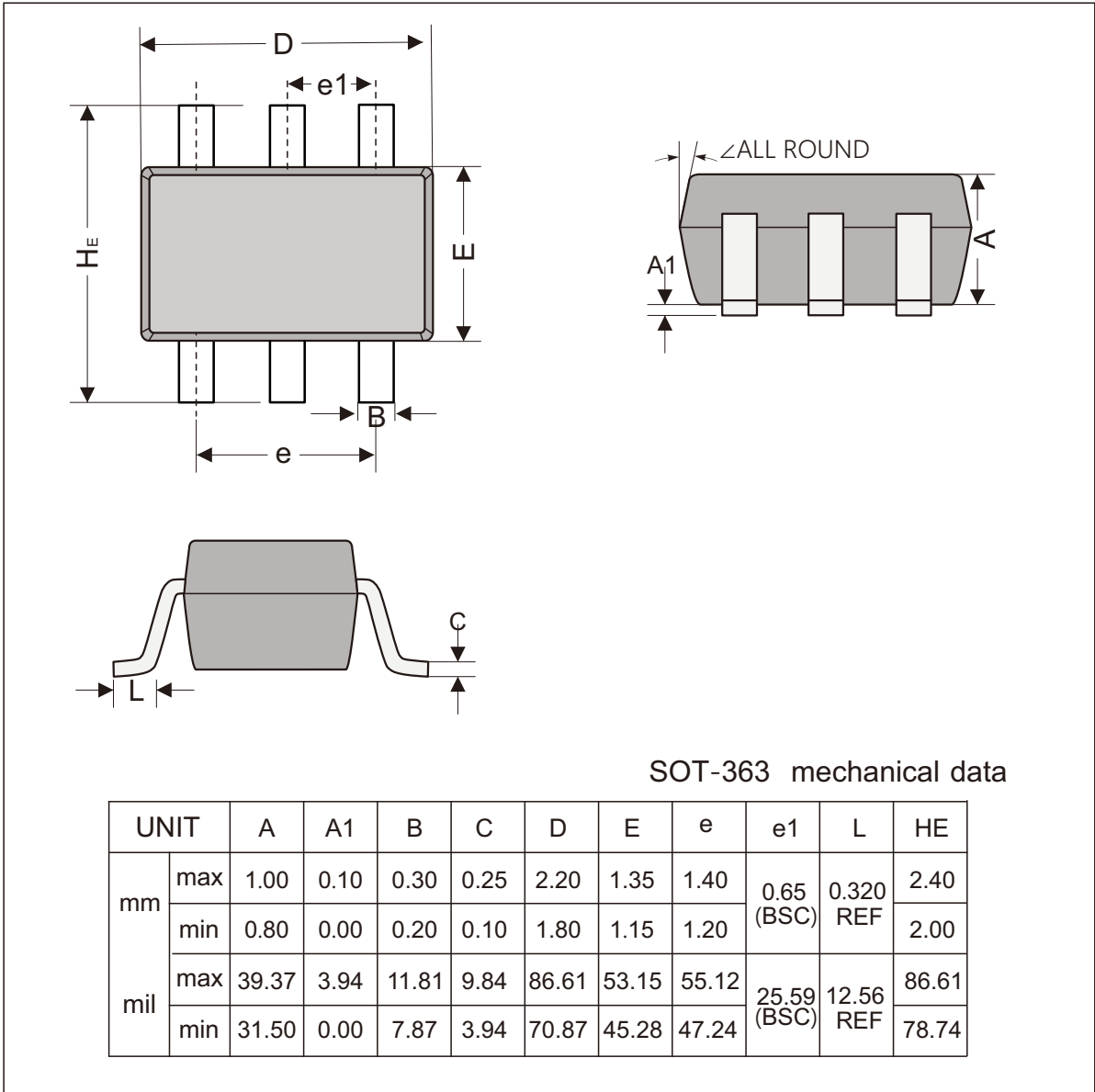


### PNP-TYPICAL CHARACTERISTICS

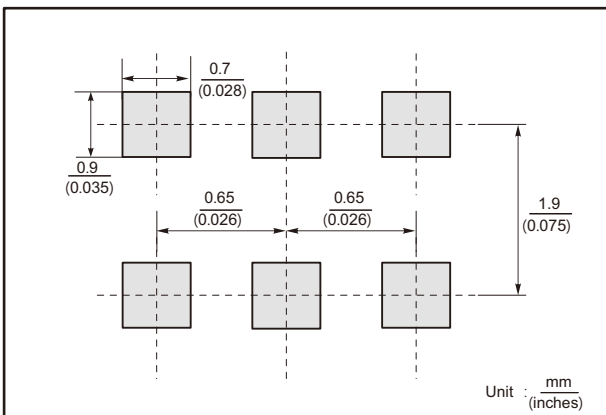




SOT-363 Package Outline Dimensions



The recommended mounting pad size



Marking

Type number	Marking code
MMBT5551PWH	54P



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