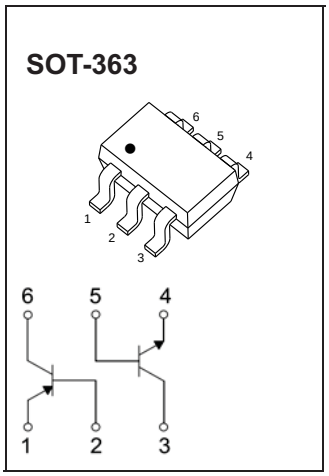
MMBT5541DW

Plastic-Encapsulate Transistors

DUAL TRANSISTOR (PNP+NPN)



FEATURES

- Epitaxial Planar Die Construction
- Ideal for low Power Amplification and Switching
- One 5401(PNP),one 5551(NPN)

MAXIMUM RATINGS NPN 5551 (T_a=25℃ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector- Base Voltage	180	V
V_{CEO}	Collector-Emitter Voltage	160	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current -Continuous	0.2	A
P_C	Collector Power Dissipation	0.2	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	625	℃/W
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55-150	℃

ELECTRICAL CHARACTERISTICS NPN 5551 (T_a=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	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			0.05	μA
Emitter cut-off current	I_{EBO}	V_{EB}=4V,I_C=0			0.05	μA
DC current gain	h_{FE1}	V_{CE}=5V,I_C=1mA	80			
	h_{FE2}	V_{CE}=5V,I_C=10mA	100		300	
	h_{FE3}	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
Output Capacitance	C_{obo}	V_{CB} = 10V, f = 1.0MHz, I_E = 0			6.0	pF
Current Gain-Bandwidth Product	f_T	V_{CE} = 10V, I_C = 10mA, f = 100MHz	100		300	MHz
Noise Figure	NF	V_{CE}= 5.0V, I_C = 200μA, R_S = 1.0kΩ, f = 1.0kHz			8.0	dB

MAXIMUM RATINGS PNP 5401 (T_a=25℃ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector- Base Voltage	-160	V
V_{CEO}	Collector-Emitter Voltage	-150	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current -Continuous	-0.2	A
P_C	Collector Power Dissipation	0.2	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	625	℃/W
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55-150	℃

ELECTRICAL CHARACTERISTICS PNP 5401 (T_a=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	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_{FE1}	V_{CE}=-5V,I_C=-1mA	50			
	h_{FE2}	V_{CE}=-5V,I_C=-10mA	100		300	
	h_{FE3}	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
Output Capacitance	C_{obo}	V_{CB} =-10V, f = 1.0MHz, I_E = 0			6.0	pF
Current Gain-Bandwidth Product	f_T	V_{CE} =-10V, I_C =-10mA, f = 100MHz	100		300	MHz
Noise Figure	NF	V_{CE}=-5.0V, I_C =-200μA, R_S = 10Ω, f = 1.0kHz			8.0	dB