



NPN SOT23 Silicon Planar Epitaxial Transistors

Pin configuration: 1. BASE 2. EMITTER 3. COLLECTOR







Absolute Maximum Ratings

	Symbol	Value	UNIT
Collector-base voltage (open emitter)	V _{CBO}	min 75	V
Collector-emmitter voltage (open base)	V_{CEO}	min 40	V
Emmitter base voltage (open collector)	V_{EBO}	min 6.0	V
Collector current (d.c.)	I _C	max 600	mA
Total power dissipation up to T _{amb} = 25°C	P _{tot}	max 300	mW
D.C. current gain I _C = 150mA; V _{CE} = 10V	h _{FE}	100 to 300	
IC = 500mA; VCE = 10V		> 40	
Transition frequency at f = $100MH_Z$ I _C = $20mA$; V _{CE} = $20V$	f _T	> 300	MHz

Ratings (at $T_A = 25^{\circ}C$ unless otherwise specified)

	Symbol	Value	UNIT
Collector-base voltage (open emitter)	V_{CBO}	min 75	V
Collector-emitter voltage (open base)	V_{CEO}	min 40	V
Emitter-base voltage (open collector)	V_{EBO}	min 6.0	V
Collector current (d.c.)	I _C	max 600	mA
Total power dissipation up to T _{amb} = 25 C	P _{tot}	max 250	mW
Storge Temperature	Tstg	-55 to +150	О°
Junction Temperature	Tj	max 150	О°
Thermal Resistance from junction to Ambient	R _{th j-a}	500	K/W

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CMBT2222A

MMBT2222A

	Symbol	Value	UNIT
Collector cut-off current			
I _E = 0; V _{CB} = 60V	I _{CBO}	< 0.01	
I _F = 0; V _{CB} = 60V; T = 125 °C	I _{CBO}	< 10	uA
$\bar{V}_{EB} = 3 \ V; \ V_{CE} = 60V$	I _{CEX}	< 10	nA
Base current			
with reverse biased emitter junction	I _{BEX}	< 20	nA
$V_{FB} = 3V; V_{CE} = 60V$			
Emitter-base cut-off current		< 10	~^
I _C = 0; V _{EB} = 3 V	'EBO	< 10	ПА
Saturation voltage			
I _C = 150mA; I _B = 15 m	V _{CEsat}	< 300	mV
	V _{BEsat}	0.6 to 1.2	V
I _C = 500mA; I _B = 50 m	V _{CEsat}	< 1.0	V
	V _{BEsat}	< 2.0	V
Breakdown voltages			
$I_{\rm C} = 1.0 {\rm mA}; I_{\rm B} = 0$	V _{(BR)CEO}	> 40	
$I_{c} = 100 uA; I_{E} = 0$	V _{(BR)CBO}	> 75	V
I _C = 0; I _E = 10u	V _{(BR)EBO}	> 6.0	
D.C. current gain	, <i>í</i>		
$I_{c} = 0.1 \text{mA}; V_{ce} = 10 \text{V}$		> 35	
$I_{c} = 1mA; V_{ce} = 10V$		> 50	
I _C = 10mA; V _{CE} = 10V	h	> 75	
I _C = 10mA; V _{CE} = 10V; T _{amb} = -55°C	11FE	> 35	
I _C = 150mA; V _{CE} = 10V		100 to 300	
I _C = 150mA; V _{CE} = 1V		> 50	
I _C = 500mA; V _{CE} = 10V		> 40	
Transition frequency at $f = 100 \text{ MH}_Z$	f_	> 300	MH-
I _C = 20mA; V _{CE} = 20V	•1	2 000	IVIT IZ
Output capacitance at f = 1 MH _Z	C.	~ 80	ηE
I _E = 0; V _{CB} = 10V	0	× 0.0	pΓ
Input capacitance at f = 1 MH _z	C	< 25	ηE
I _E = 0; V _{EB} = 0.5V	U _i	< 25	pΓ
Noise figure at R _s = 1K ohm	E	< 10	dP
I _C = 100uA; V _{CE} = 10V; f= 1kH _Z	Г	4.0	uВ
Switching times			
(between 10% and 90% levels)			
Turn-on time switched to I _c = 150mA			
delay time	td	< 10	ns
rise time	tr	< 25	
Turn-off time switched from IC= 150mA			
storage time	ts	< 225	
fall time	tf	< 60	

Characteristics (at Tj=25 °C unless otherwise specified)

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