



DC COMPONENTS CO., LTD.

DISCRETE SEMICONDUCTORS

DMBT2222A

TECHNICAL SPECIFICATIONS OF NPN EPITAXIAL PLANAR TRANSISTOR

Description

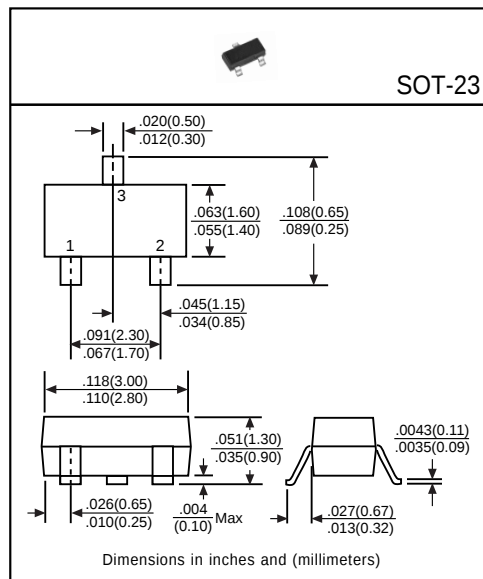
Designed for general purpose switching and amplifier applications.

Pinning

- 1 = Base
- 2 = Emitter
- 3 = Collector

Absolute Maximum Ratings($T_A=25^{\circ}\text{C}$)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	75	V
Collector-Emitter Voltage	V_{CE0}	40	V
Emitter-Base Voltage	V_{EB0}	6	V
Collector Current	I_C	600	mA
Total Power Dissipation	P_D	225	mW
Junction Temperature	T_J	+150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 to +150	$^{\circ}\text{C}$



Electrical Characteristics

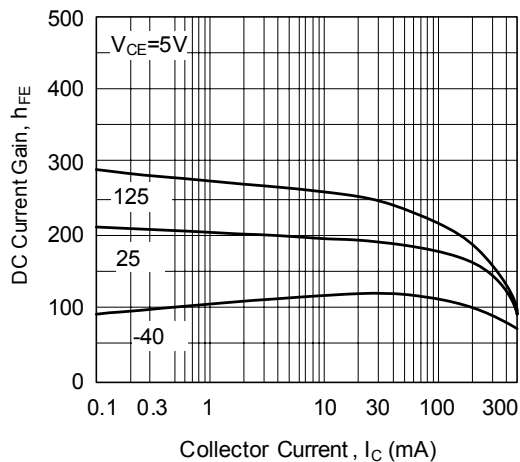
(Ratings at 25°C ambient temperature unless otherwise specified)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Collector-Base Breakdown Voltage	BV_{CB0}	75	-	-	V	$I_C=10\mu\text{A}$
Collector-Emitter Breakdown Voltage	BV_{CE0}	40	-	-	V	$I_C=10\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EB0}	5	-	-	V	$I_E=10\mu\text{A}$
Collector Cutoff Current	I_{CB0}	-	-	10	nA	$V_{CB}=60\text{V}$
	I_{CEX}	-	-	10	nA	$V_{CE}=60\text{V}, V_{EB(off)}=3\text{V}$
Emitter Cutoff Current	I_{EB0}	-	-	10	nA	$V_{EB}=3\text{V}$
Collector-Emitter Saturation Voltage ⁽¹⁾	$V_{CE(sat)1}$	-	-	0.5	V	$I_C=380\text{mA}, I_B=10\text{mA}$
	$V_{CE(sat)2}$	-	-	1.0	V	$I_C=500\text{mA}, I_B=50\text{mA}$
Base-Emitter Saturation Voltage ⁽¹⁾	$V_{BE(sat)1}$	-	-	1.2	V	$I_C=150\text{mA}, I_B=15\text{mA}$
	$V_{BE(sat)2}$	-	-	2.0	V	$I_C=500\text{mA}, I_B=50\text{mA}$
DC Current Gain ⁽¹⁾	h_{FE1}	35	-	-	-	$I_C=0.1\text{mA}, V_{CE}=10\text{V}$
	h_{FE2}	50	-	-	-	$I_C=1\text{mA}, V_{CE}=10\text{V}$
	h_{FE3}	75	-	-	-	$I_C=10\text{mA}, V_{CE}=10\text{V}$
	h_{FE4}	100	-	300	-	$I_C=150\text{mA}, V_{CE}=10\text{V}$
	h_{FE5}	40	-	-	-	$I_C=500\text{mA}, V_{CE}=10\text{V}$
Transition Frequency	f_T	300	-	-	MHz	$I_C=20\text{mA}, V_{CE}=20\text{V}, f=100\text{MHz}$

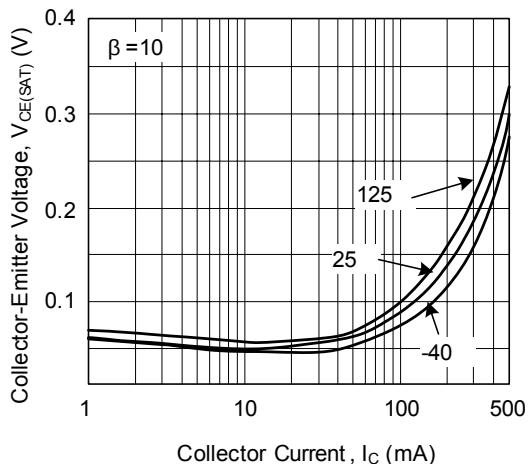
(1) Pulse Test: Pulse Width $\leq 380\mu\text{s}$, Duty Cycle $\leq 2\%$

Electrical Characteristic Curves

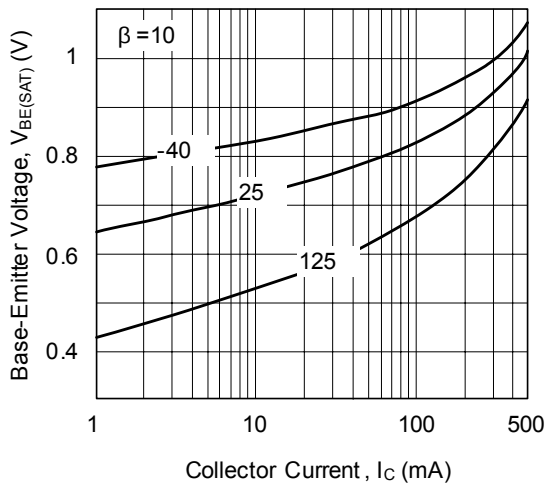
DC Current Gain vs. Collector Current



Collector-Emitter Saturation Voltage vs. Collector Current



Base-Emitter Saturation Voltage vs. Collector Current



Emitter Transition and Output Capacitance vs. Reverse Bias Voltage

