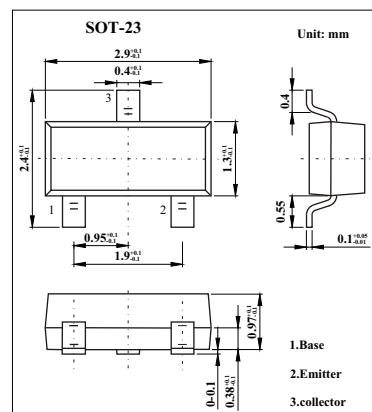


NPN Switching Transistor

KMBT2222A

■ Features

- High current (max. 600 mA)
- Low voltage (max.40 V).



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	75	V
Collector-emitter voltage	V_{CEO}	40	V
Emitter-base voltage	V_{EBO}	6	V
Collector current	I_C	600	mA
Total power dissipation $T_a \leq 25^\circ\text{C}$	P_{tot}	300	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$	417	K/W
Operating and Storage and Temperature Range	T_j, T_{STG}	-65 to +150	$^\circ\text{C}$

KMBT2222A■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Testconditions	Min	Typ	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	$V_{(BR)EBO}$	$I_C = 10\ \mu\text{A}$, $I_C = 0$	6			V
Collector cutoff current	I_{CBO}	$I_E = 0$; $V_{CB} = 60\ \text{V}$			10	nA
		$I_E = 0$; $V_{CB} = 60\ \text{V}$; $T_J = 125^\circ\text{C}$			10	μA
Emitter cutoff current	I_{EBO}	$I_C = 0$; $V_{EB} = 3\ \text{V}$			10	nA
DC current gain	h_{FE}	$I_C = 0.1\ \text{mA}$; $V_{CE} = 10\ \text{V}$	35			
		$I_C = 1\ \text{mA}$; $V_{CE} = 10\ \text{V}$	50			
		$I_C = 10\ \text{mA}$; $V_{CE} = 10\ \text{V}$	75			
		$I_C = 10\ \text{mA}$; $V_{CE} = 10\ \text{V}$; $T_a = -55^\circ\text{C}$	35			
		$I_C = 150\ \text{mA}$; $V_{CE} = 10\ \text{V}$	100		300	
		$I_C = 150\ \text{mA}$; $V_{CE} = 1\ \text{V}$	50			
		$I_C = 500\ \text{mA}$; $V_{CE} = 10\ \text{V}$	40			
collector-emitter saturation voltage	V_{CEsat}	$I_C = 150\ \text{mA}$; $I_B = 15\ \text{mA}$			300	mV
		$I_C = 500\ \text{mA}$; $I_B = 50\ \text{mA}$			1	V
base-emitter saturation voltage	V_{BEsat}	$I_C = 150\ \text{mA}$; $I_B = 15\ \text{mA}$	0.6		1.2	V
		$I_C = 500\ \text{mA}$; $I_B = 50\ \text{mA}$			2	V
Delay time	t_d	$I_{B1} = 15\ \text{mA}$, $I_C = 150\ \text{mA}$, $V_{CC} = 30\text{V}$, $V_{BE} = -0.5\ \text{V}$			15	ns
Rise time	t_r				25	ns
Storage time	t_s	$I_{B1} = I_{B2} = 15\ \text{mA}$,			200	ns
Fall time	t_f	$I_C = 150\ \text{mA}$, $V_{CC} = 30\text{V}$			60	ns
Output Capacitance	C_{obo}	$V_{CB} = 10\text{V}$, $f = 1.0\text{MHz}$, $I_E = 0$			8	pF
Input Capacitance	C_{ibo}	$V_{EB} = 0.5\text{V}$, $f = 1.0\text{MHz}$, $I_C = 0$			25	pF
Noise Figure	NF	$V_{CE} = 10\ \text{V}$, $I_C = 100\ \mu\text{A}$, $R_s = 1\ \text{k}\Omega$, $f = 1\ \text{kHz}$			4	dB
Transition frequency	f_T	$I_C = 20\ \text{mA}$; $V_{CE} = 20\ \text{V}$; $f = 100\ \text{MHz}$	300			MHz

■ Marking

Marking	1P
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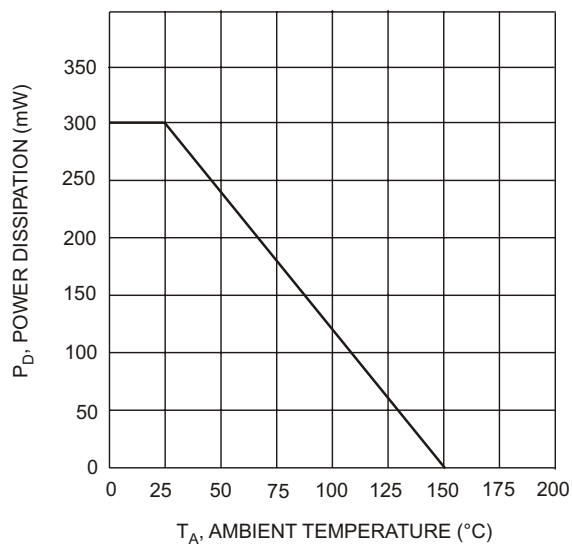
KMBT2222A

Fig. 1, Max Power Dissipation vs Ambient Temperature

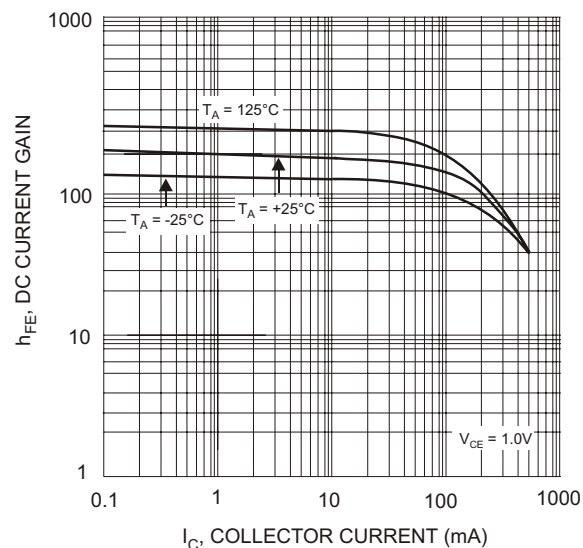


Fig. 2, Typical DC Current Gain vs Collector Current

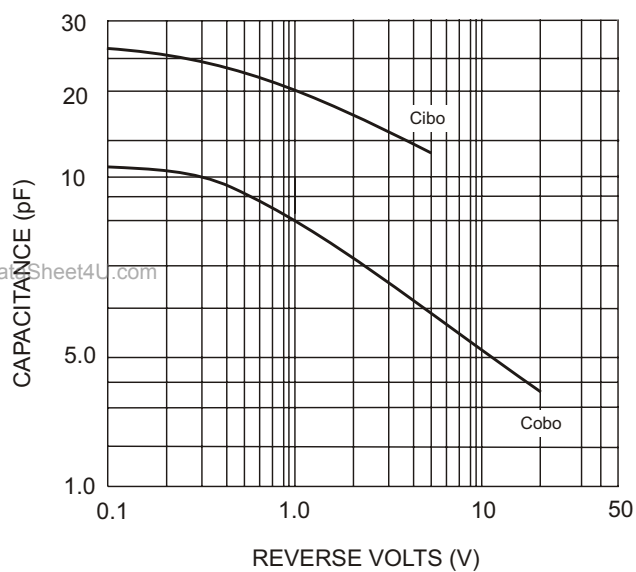


Fig. 3 Typical Capacitance

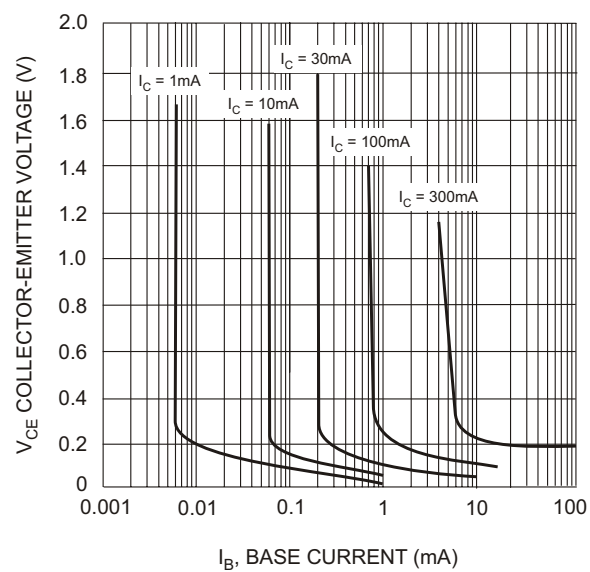


Fig. 4 Typical Collector Saturation Region