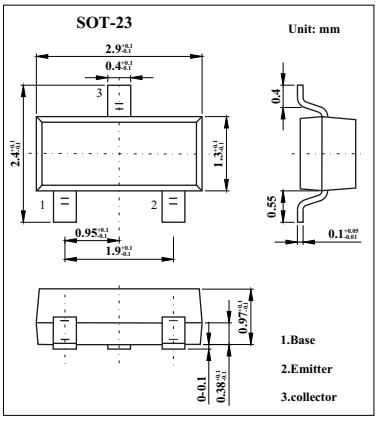
NPN Switching Transistor
KMBT2222A



■ Features

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

■ Absolute Maximum Ratings Ta = 25°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 Ta≤ 25 °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	°C

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■ Electrical Characteristics Ta = 25°C

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

■ Marking

Marking	1P

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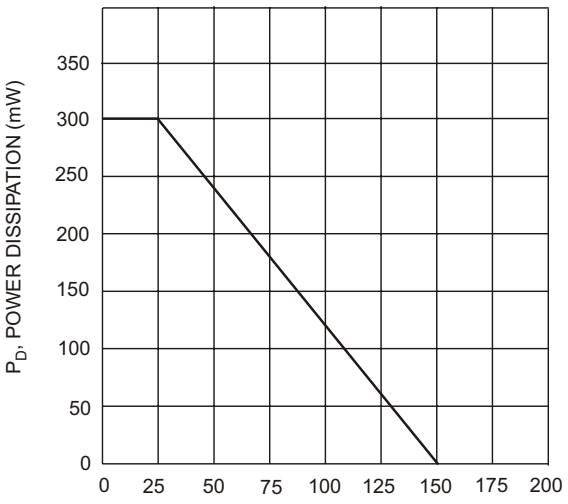

Fig. 1, Max Power Dissipation vs Ambient Temperature

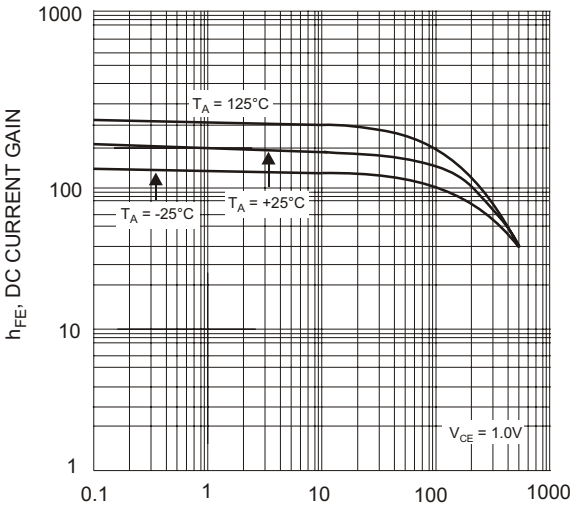

Fig. 2, Typical DC Current Gain vs Collector Current

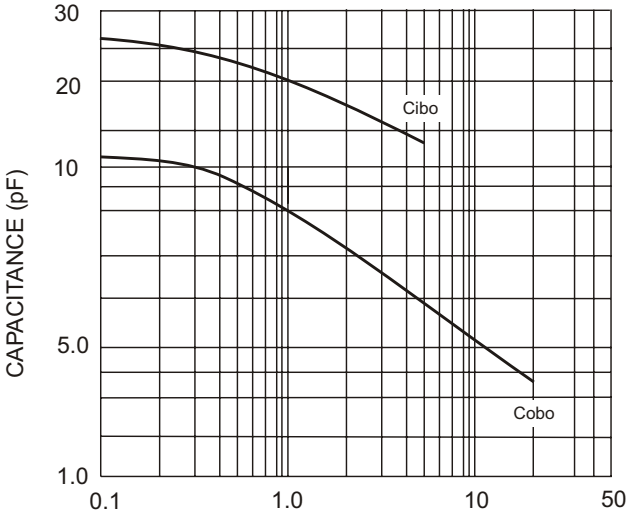

Fig. 3 Typical Capacitance

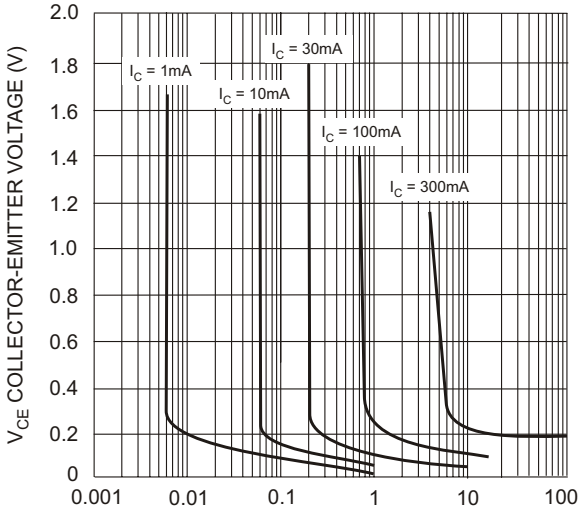

Fig. 4 Typical Collector Saturation Region