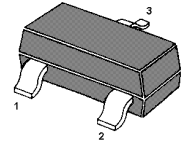


# MMBT619

## NPN Silicon Epitaxial Planar Transistor



1.BASE 2.EMITTER 3.COLLECTOR

SOT-23 Plastic Package

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	50	V
Collector Emitter Voltage	$V_{CEO}$	50	V
Emitter Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	2	A
Peak Pulse Current	$I_{CM}$	6	A
Power Dissipation	$P_{tot}^{1)}$	625	mW
Junction Temperature	$T_j$	- 55 to + 150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	- 55 to + 150	$^\circ\text{C}$

<sup>1)</sup> Maximum power dissipation is calculated assuming that the device is mounted on a ceramic, substrate measuring 15 x 15 x 0.6 mm.

**TOP DYNAMIC**



ISO14001 : 2004 Certificate No. 121505007  
ISO 9001 : 2008 Certificate No. 5014012  
OHSAS 18001 : 2007 Certificate No. 0615150809  
IECQ CC 080900 Certificate No. E20180074M2

Dated: 16/03/2015 Rev:03 CL

# MMBT619

## Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 2\text{ V}$ , $I_C = 10\text{ mA}$	$h_{FE}$	200	-	-	-
at $V_{CE} = 2\text{ V}$ , $I_C = 200\text{ mA}$	$h_{FE}$	300	-	-	-
at $V_{CE} = 2\text{ V}$ , $I_C = 1\text{ A}$	$h_{FE}$	200	-	-	-
at $V_{CE} = 2\text{ V}$ , $I_C = 2\text{ A}$	$h_{FE}$	100	-	-	-
at $V_{CE} = 2\text{ V}$ , $I_C = 6\text{ A}$	$h_{FE}$	-	40	-	-
Collector Base Cutoff Current at $V_{CB} = 40\text{ V}$	$I_{CBO}$	-	-	100	nA
Collector Emitter Cutoff Current at $V_{CE} = 40\text{ V}$	$I_{CES}$	-	-	100	nA
Emitter Base Cutoff Current at $V_{EB} = 4\text{ V}$	$I_{EBO}$	-	-	100	nA
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$	50	-	-	V
Collector Emitter Breakdown Voltage at $I_C = 10\text{ mA}$	$V_{(BR)CEO}$	50	-	-	V
Emitter Base Breakdown Voltage at $I_E = 100\text{ }\mu\text{A}$	$V_{(BR)EBO}$	5	-	-	V
Collector Emitter Saturation Voltage at $I_C = 100\text{ mA}$ , $I_B = 10\text{ mA}$	$V_{CEsat}$	-	-	20	mV
at $I_C = 1\text{ A}$ , $I_B = 10\text{ mA}$		-	-	200	
at $I_C = 2\text{ A}$ , $I_B = 50\text{ mA}$		-	-	220	
Base Emitter Saturation Voltage at $I_C = 2\text{ A}$ , $I_B = 50\text{ mA}$	$V_{BEsat}$	-	-	1	V
Base Emitter Voltage at $V_{CE} = 2\text{ V}$ , $I_C = 2\text{ A}$	$V_{BE(on)}$	-	-	1	V
Transition Frequency at $V_{CE} = 10\text{ V}$ , $I_C = 50\text{ mA}$ , $f = 100\text{ MHz}$	$f_T$	100	-	-	MHz
Collector Output Capacitance at $V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$	$C_{ob}$	-	-	20	pF
Turn-On Time at $V_{CC} = 10\text{ V}$ , $I_C = 1\text{ A}$ , $I_{B1} = -I_{B2} = 10\text{ mA}$	$t_{d(on)}$	-	170	-	ns
Turn-Off Time at $V_{CC} = 10\text{ V}$ , $I_C = 1\text{ A}$ , $I_{B1} = -I_{B2} = 10\text{ mA}$	$t_{d(off)}$	-	150	-	ns

**TOP DYNAMIC**



Dated: 16/03/2015 Rev:03 CL

Fig.1 IC - VBE(on)  
at VCE= 2V, Ta= 25C

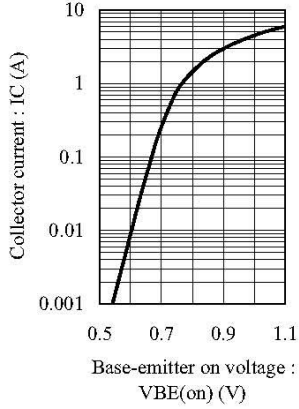


Fig.2 hFE - IC  
at VCE= 2V, Ta= 25C

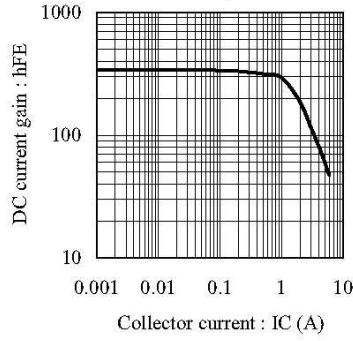


Fig.3 VCE(sat) - IC  
at IC/IB= 10, Ta= 25C

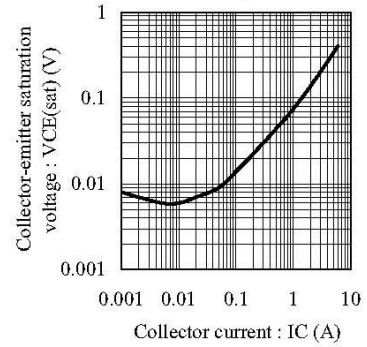


Fig.4 VCE(sat) - IC  
at IC/IB= 40, Ta= 25C

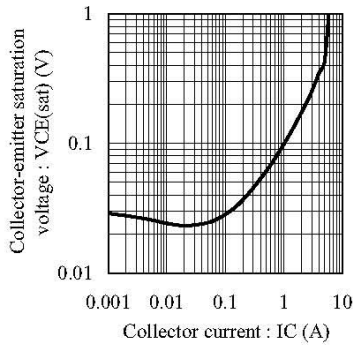


Fig.5 VCE(sat) - IC  
at IC/IB= 100, Ta= 25C

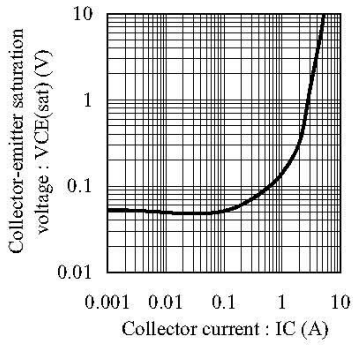


Fig.6 VBE(sat) - IC  
at IC/IB= 40, Ta= 25C

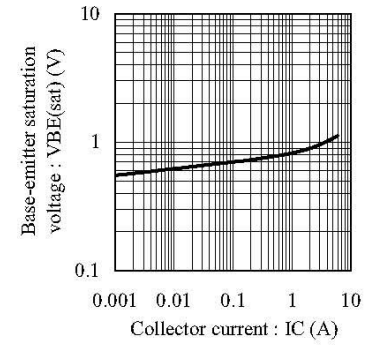


Fig.7 fT - IE  
at VCE= 10V, Ta= 25C

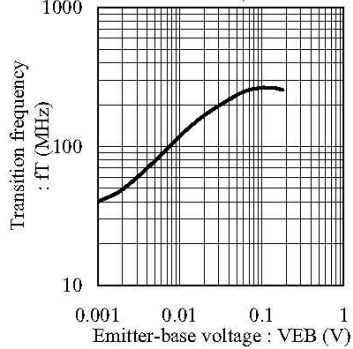


Fig.8 Cob - VCB  
at f= 1MHz, Ta= 25C

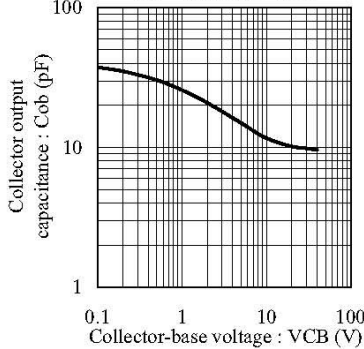


Fig.9 Cib - VEB  
at f=1MHz, Ta= 25C

