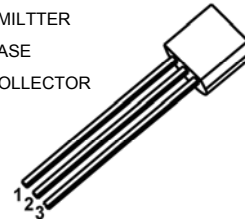


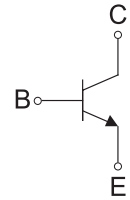
### Features

- High collector current
- TO-92 plastic package
- RoHS compliant

1. EMITTER
2. BASE
3. COLLECTOR



TO-92



Schematic Diagram

### Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CB0</sub>	75	V
Collector-Emitter Voltage	V <sub>CEO</sub>	40	V
Emitter-Base Voltage	V <sub>EBO</sub>	6	V
Collector Current-Continuous	I <sub>C</sub>	0.6	A
Collector Power Dissipation	P <sub>C</sub>	625	mW
Thermal Resistance from Junction to Ambient	R <sub>θJA</sub>	200	°C/W
Operation Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to +150	°C

### Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

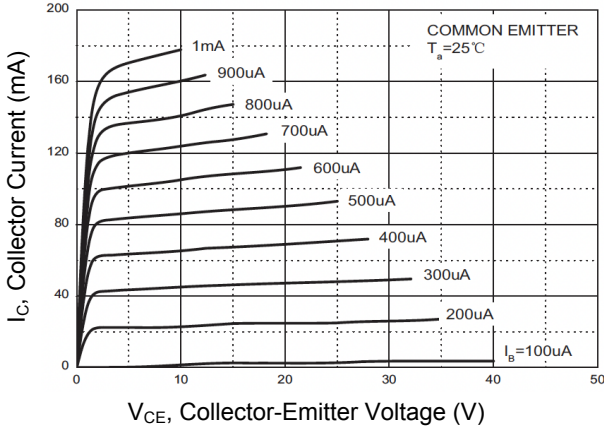
Parameter	Symbol	Test Conditions	Min	Max	Unit
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =10uA, I <sub>E</sub> =0	75	-	V
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =0	40	-	V
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =10uA, I <sub>C</sub> =0	6	-	V
Collector Cut-Off Current	I <sub>CB0</sub>	V <sub>CB</sub> =60V, I <sub>E</sub> =0	-	10	nA
Collector Cut-Off Current	I <sub>CEx</sub>	V <sub>CE</sub> =60V, V <sub>EB(off)</sub> =3V	-	10	nA
Emitter Cut-Off Current	I <sub>EBO</sub>	V <sub>EB</sub> =3V, I <sub>C</sub> =0	-	100	nA
DC Current Gain	h <sub>FE(1)</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =150mA	100	300	-
	h <sub>FE(2)</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =0.1mA	40	-	
	h <sub>FE(3)</sub> <sup>1</sup>	V <sub>CE</sub> =10V, I <sub>C</sub> =500mA	42	-	
Collector-Emitter Saturation Voltage	V <sub>CE(sat)(1)</sub> <sup>1</sup>	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA	-	0.6	V
	V <sub>CE(sat)(2)</sub> <sup>1</sup>	I <sub>C</sub> =150mA, I <sub>B</sub> =15mA	-	0.3	
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub> <sup>1</sup>	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA	-	1.2	V
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> =20V, I <sub>C</sub> =20mA, F=100MHz	300	-	MHz
Delay Time	t <sub>d</sub>	V <sub>CC</sub> =30V, V <sub>EB(off)</sub> =0.5V,	-	10	ns
Rise Time	t <sub>r</sub>	I <sub>C</sub> =150mA, I <sub>B1</sub> =15mA	-	25	ns
Storage Time	t <sub>s</sub>	V <sub>CC</sub> =30V, I <sub>C</sub> =150mA	-	225	ns
Fall Time	t <sub>f</sub>	I <sub>B1</sub> =I <sub>B2</sub> =15mA	-	60	ns

Note:  
 1. pulse test

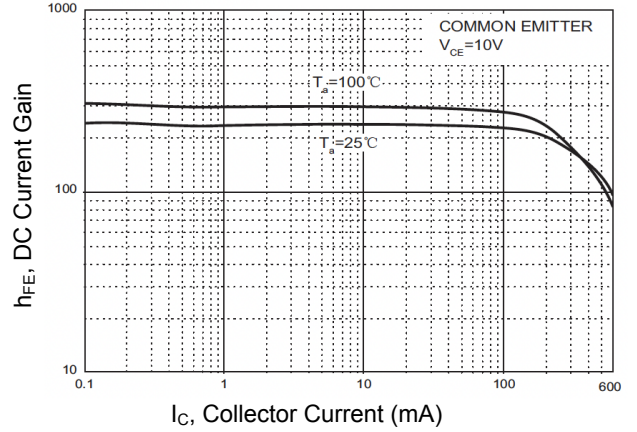
### Classification of h<sub>FE(1)</sub>

Rank	L	H
Range	100-200	200-300

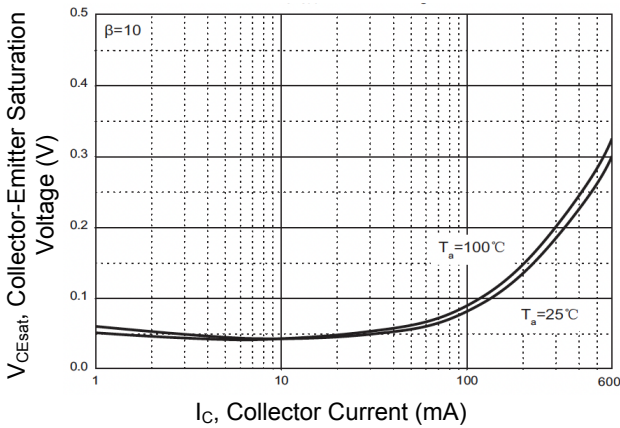
**Typical Characteristic Curves**



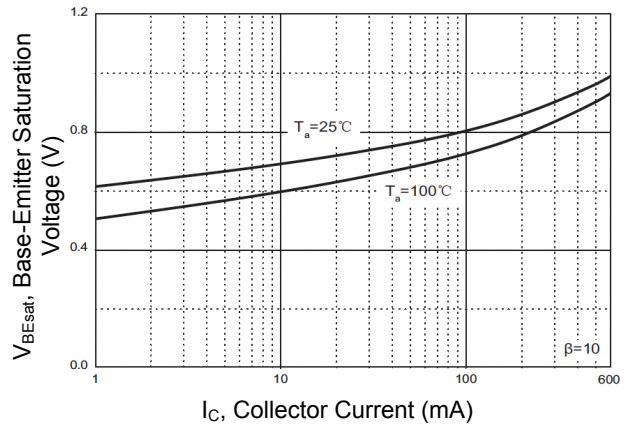
**Figure 1. Static Characteristic**



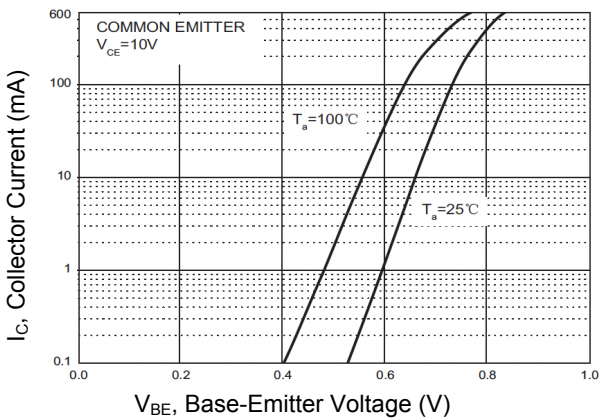
**Figure 2.  $h_{FE} - I_C$**



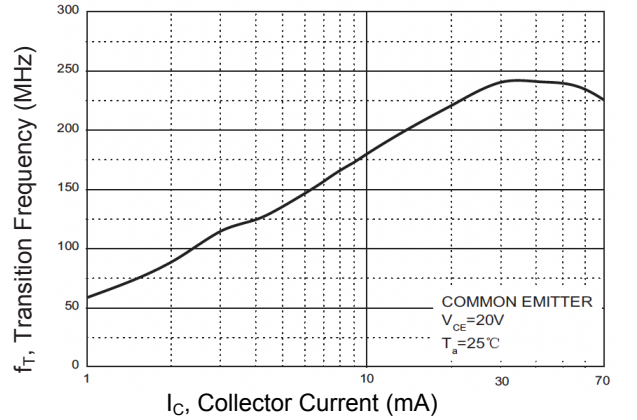
**Figure 3.  $V_{CEsat} - I_C$**



**Figure 4.  $V_{BEsat} - I_C$**

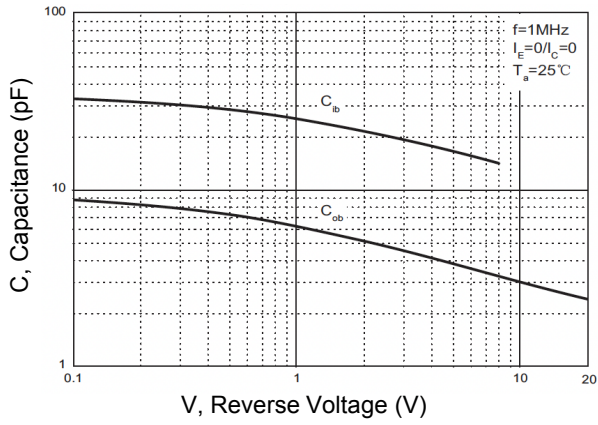


**Figure 5.  $I_C - V_{BE}$**

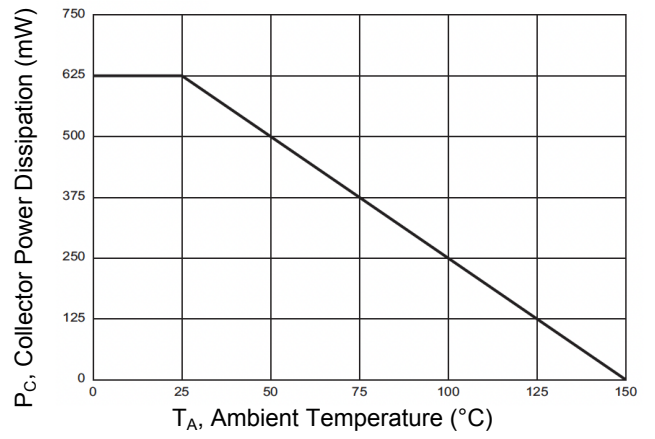


**Figure 6.  $f_T - I_C$**

**Typical Characteristic Curves**

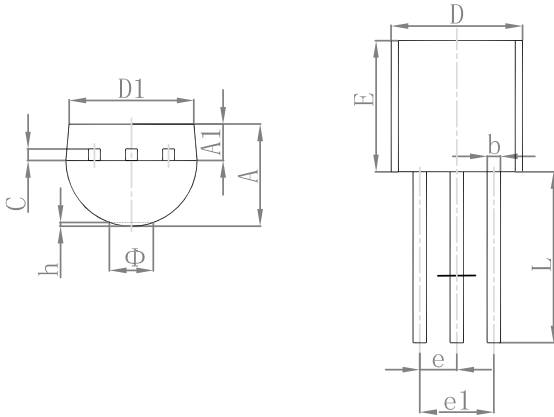


**Figure 7.  $C_{ob}/C_{ib} - V_{CB}/V_{EB}$**



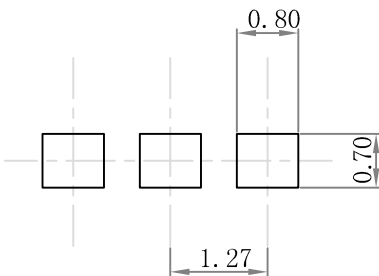
**Figure 8.  $P_C - T_a$**

**Package Outline Dimensions (TO-92)**



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.300	4.700	0.169	0.185
D1	3.430	-	0.135	-
E	4.300	4.700	0.169	0.185
e	1.270 TYP		0.050 TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ	-	1.600	-	0.063
h	0.000	0.380	0.000	0.015

**Recommended Pad Layout**



**Note:**

1. Controlling dimension: in millimeters
2. General tolerance: ±0.05mm
3. The pad layout is for reference purposes only

**Order Information**

Device	Package	Marking	Quantity	HSF Status
GSMPS2222A	TO-92	MPS2222A	2,000pcs / Box	RoHS Compliant