



## TO-92 Plastic-Encapsulate Transistors

**2N2222A** TRANSISTOR (NPN )

### FEATURE

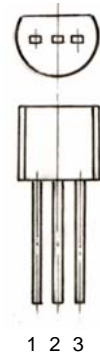
Complementary NPN Type available (MPS2222)

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

Symbol	Parameter	Value	Units
V <sub>CBO</sub>	Collector-Base Voltage	75	V
V <sub>CEO</sub>	Collector-Emitter Voltage	40	V
V <sub>EBO</sub>	Emitter-Base Voltage	6	V
I <sub>C</sub>	Collector Current -Continuous	600	mA
P <sub>C</sub>	Collector Power Dissipation	625	mW
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55-150	°C

TO-92

1. EMITTER
2. BASE
3. COLLECTOR



### ELECTRICAL CHARACTERISTICS (T<sub>amb</sub>=25°C unless otherwise specified)

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>CBO</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> = 3 V, 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> *	V <sub>CE</sub> =10V, I <sub>C</sub> = 500mA	42		
Collector-emitter saturation voltage	V <sub>CE(sat)(1)</sub> *	I <sub>C</sub> = 500mA, I <sub>B</sub> =50mA		0.6	V
	V <sub>CE(sat)(2)</sub> *	I <sub>C</sub> = 150mA, I <sub>B</sub> =15mA		0.3	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub> *	I <sub>C</sub> = 500mA, I <sub>B</sub> = 50mA		1.2	V
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, I <sub>B1</sub> =I <sub>B2</sub> =15mA		225	nS
Fall time	t <sub>f</sub>			60	nS
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =20V, I <sub>C</sub> =20mA, f=100MHz	300		MHz

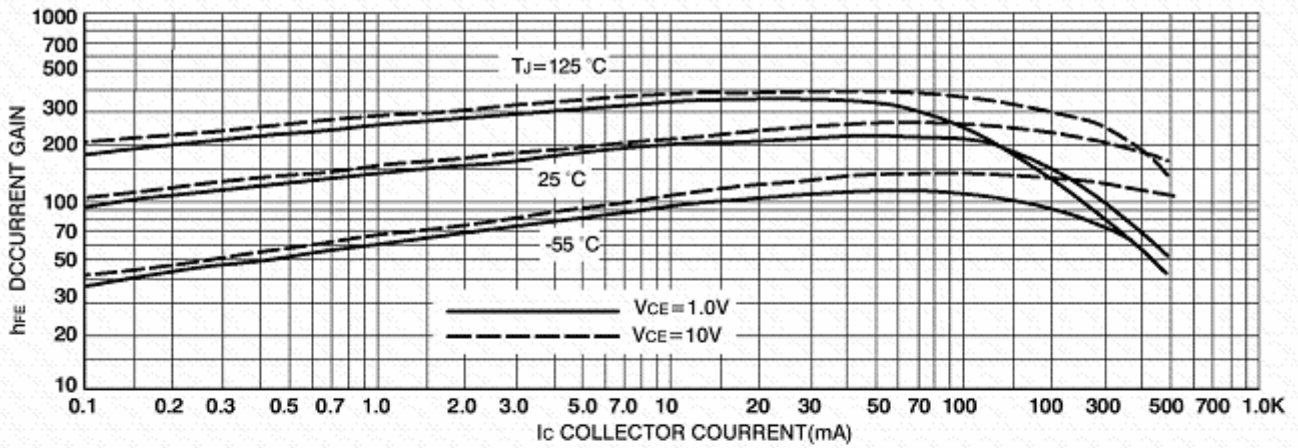
\* pulse test

### CLASSIFICATION OF h<sub>FE(1)</sub>

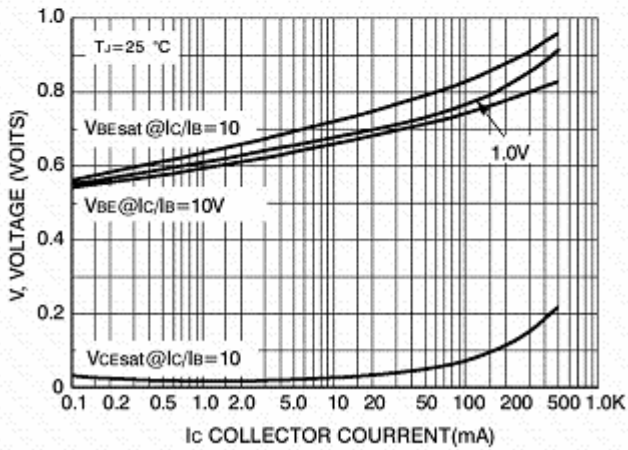
Rank	L	H
Range	100-200	200-300

# Typical Characteristics

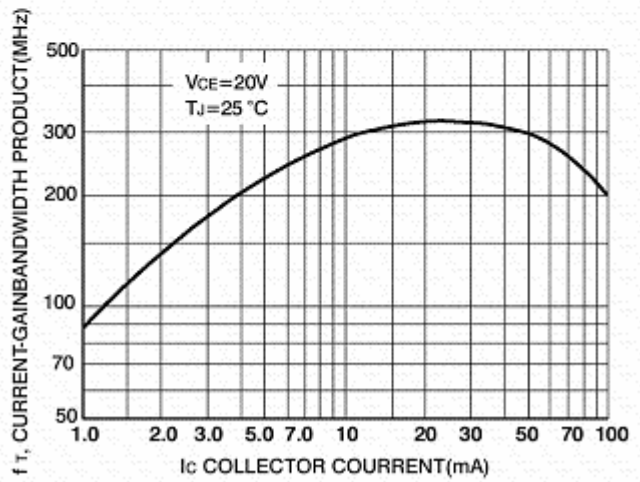
# MPS2222A



DC Current Gain



"On" Voltages



Current-Gain Bandwidth Product