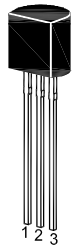
MPS650 / 651

NPN Silicon Epitaxial Planar Transistor

for switching and amplifier applications.



1. Emitter 2. Base 3. Collector
TO-92 Plastic Package

Absolute Maximum Ratings (T_a = 25 °C)

Parameter		Symbol	Value	Unit
Collector Base Voltage	MPS650 MPS651	V_{CBO}	60 80	V
Collector Emitter Voltage	MPS650 MPS651	V_{CEO}	40 60	V
Emitter Base Voltage		V_{EBO}	5	V
Collector Current		I_C	2	A
Power Dissipation		P_{tot}	625	mW
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	- 55 to + 150	°C

Characteristics at T_a = 25 °C

Parameter		Symbol	Min.	Max.	Unit
DC Current Gain					
at V_{CE} = 2 V, I_C = 50 mA		h_{FE}	75	-	-
at V_{CE} = 2 V, I_C = 500 mA		h_{FE}	75	-	-
at V_{CE} = 2 V, I_C = 1 A		h_{FE}	75	-	-
at V_{CE} = 2 V, I_C = 2 A		h_{FE}	40	-	-
Collector Base Cutoff Current					
at V_{CB} = 60 V	MPS650	I_{CBO}	-	100	nA
at V_{CB} = 80 V	MPS651		-	100	
Emitter Base Cutoff Current at V_{EB} = 4 V		I_{EBO}	-	100	nA
Collector Base Breakdown Voltage					
at I_C = 100 µA	MPS650	$V_{(BR)CBO}$	60	-	V
	MPS651		80	-	
Collector Emitter Breakdown Voltage					
at I_C = 10 mA	MPS650	$V_{(BR)CEO}$	40	-	V
	MPS651		60	-	
Emitter Base Breakdown Voltage at I_E = 10 µA		$V_{(BR)EBO}$	5	-	V
Collector Emitter Saturation Voltage					
at I_C = 1 A, I_B = 100 mA		$V_{CE(sat)}$	-	0.3	V
at I_C = 2 A, I_B = 200 mA			-	0.5	
Base Emitter Saturation Voltage at I_C = 1 A, I_B = 100 mA		$V_{BE(sat)}$	-	1.2	V
Base Emitter On Voltage at I_C = 1 A, V_{CE} = 2 V		$V_{BE(on)}$	-	1	V
Gain Bandwidth Product at V_{CE} = 5 V, I_C = 50 mA, f = 100 MHz		f_T	75	-	MHz

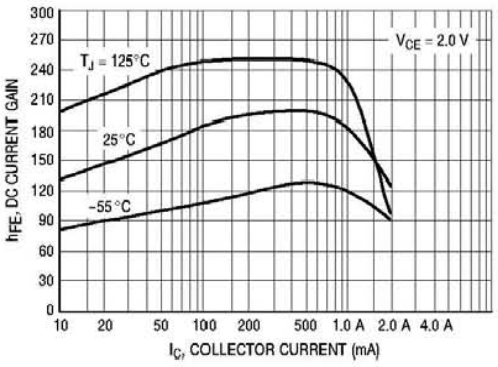


Figure 1. MPS650, MPS651
Typical DC Current Gain

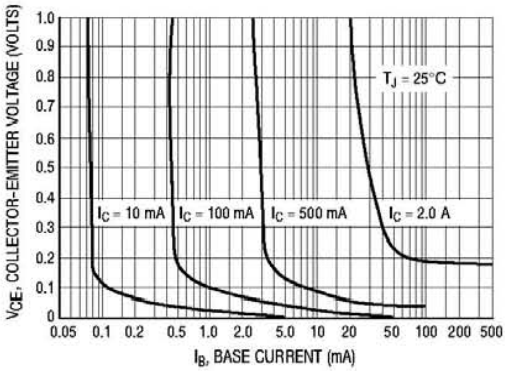


Figure 2. MPS650, MPS651
Collector Saturation Region

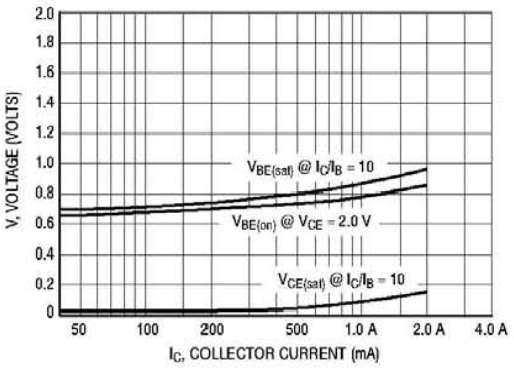


Figure 3. MPS650, MPS651
On Voltages