

RoHS Compliant Product

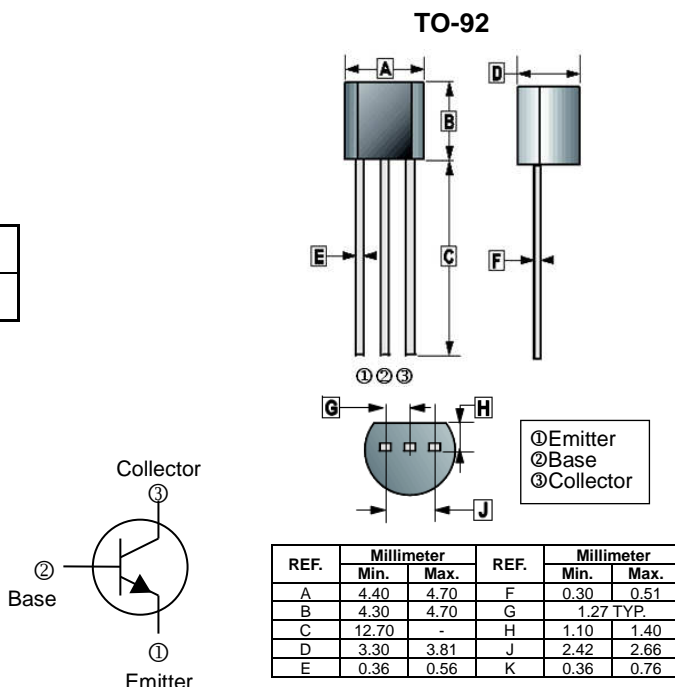
A suffix of "-C" specifies halogen & lead-free

### FEATURES

High Voltage NPN Transistor

### CLASSIFICATION OF $h_{FE}$ (2)

Product-Rank	MPSA42-A	MPSA42-B	MPSA42-C
Range	80~100	100~200	200~250



### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise specified)

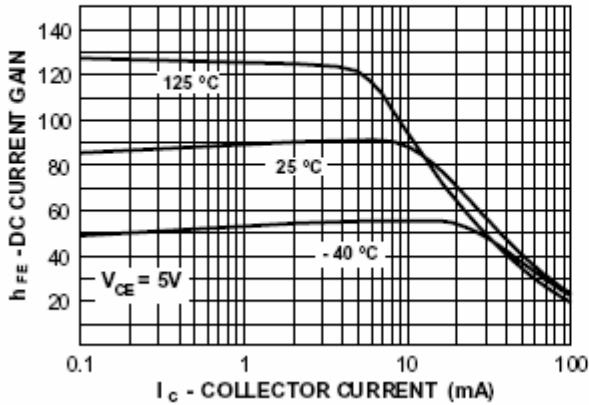
PARAMETER	SYMBOL	RATING	UNIT
Collector to Base Voltage	$V_{CB0}$	310	V
Collector to Emitter Voltage	$V_{CEO}$	305	V
Emitter to Base Voltage	$V_{EBO}$	5	V
Collector Current - Continuous	$I_C$	200	mA
Collector Current - Pulsed	$I_{CM}$	500	mA
Collector Power Dissipation	$P_C$	625	mW
Junction, Storage Temperature	$T_J, T_{STG}$	150, -55~150	$^\circ\text{C}$
Thermal Resistance, junction to Ambient	$R_{\theta JA}$	200	$^\circ\text{C}/\text{mW}$
Thermal Resistance, junction to Case	$R_{\theta JC}$	83.3	$^\circ\text{C}/\text{mW}$

### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise specified)

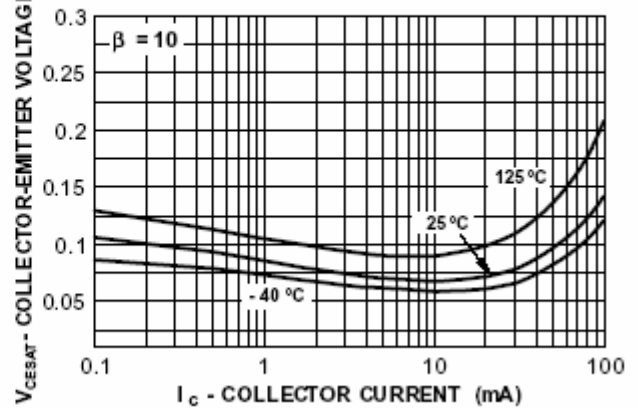
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITION
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	310	-	-	V	$I_C=100\mu\text{A}, I_E=0\text{A}$
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	305	-	-	V	$I_C=1\text{mA}, I_B=0\text{A}$
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	5	-	-	V	$I_E=100\mu\text{A}, I_C=0\text{A}$
Collector Cut-Off Current	$I_{CBO}$	-	-	0.25	$\mu\text{A}$	$V_{CB}=200\text{V}, I_E=0\text{A}$
Emitter Cut-Off Current	$I_{EBO}$	-	-	0.1	$\mu\text{A}$	$V_{EB}=5\text{V}, I_C=0\text{mA}$
DC Current Gain	$h_{FE(1)}$	60	-	-		$V_{CE}=10\text{V}, I_C=1\text{mA}$
	$h_{FE(2)}$	80	-	250		$V_{CE}=10\text{V}, I_C=10\text{mA}$
	$h_{FE(3)}$	75	-	-		$V_{CE}=10\text{V}, I_C=30\text{mA}$
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	-	-	0.2	V	$I_C=20\text{mA}, I_B=2\text{mA}$
Base to Emitter Voltage	$V_{BE(sat)}$	-	-	0.9	V	$I_C=20\text{mA}, I_B=2\text{mA}$
Transition Frequency	$f_T$	50	-	-	MHz	$V_{CE}=20\text{V}, I_C=10\text{mA}, f=30\text{MHz}$

**CHARACTERISTIC CURVES**

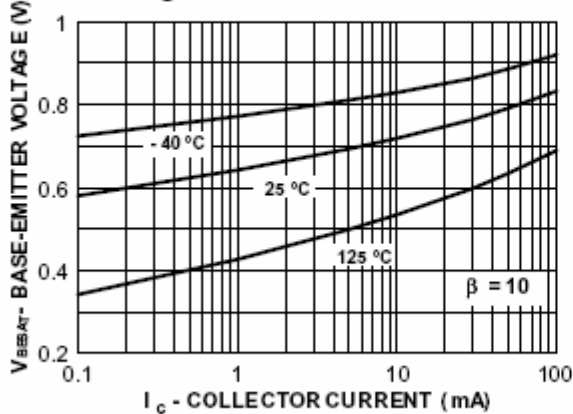
**DC Current Gain vs Collector Current**



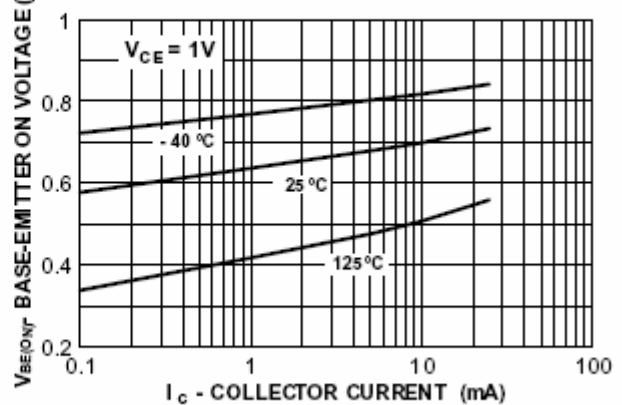
**Collector-Emitter Saturation Voltage vs Collector Current**



**Base-Emitter Saturation Voltage vs Collector Current**

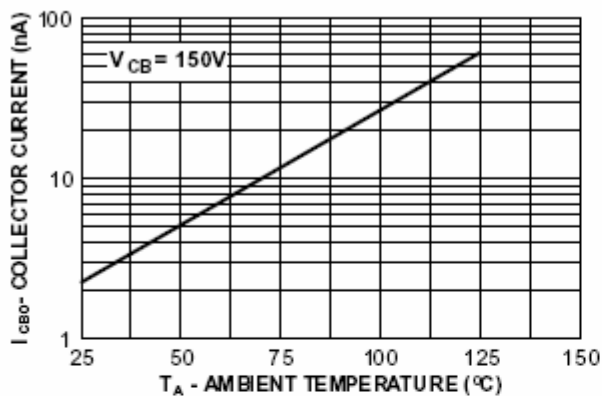


**Base-Emitter ON Voltage vs Collector Current**

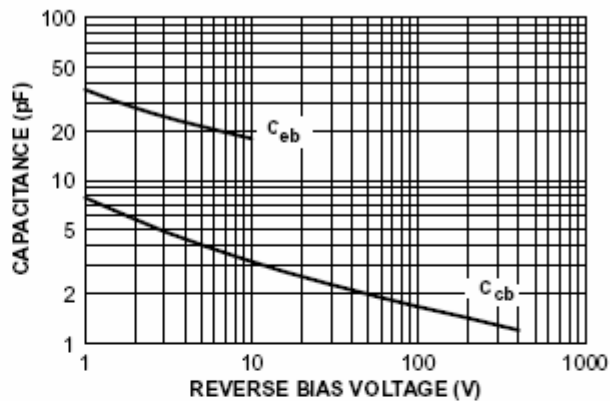


**CHARACTERISTIC CURVES**

**Collector-Cutoff Current vs Ambient Temperature**



**Collector-Base and Emitter-Base Capacitance vs Reverse Bias Voltage**



**Power Dissipation vs Ambient Temperature**

