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# MPSA20

## NPN General Purpose Amplifier

### Features

- $V_{CE0}$  .....40V(Min)
- $h_{FE}$  ..... 40~400 @  $V_{CE}=10V, I_C=5mA$
- Pb free
- Sourced from process 10



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

### Absolute Maximum Ratings $T_a = 25^\circ C$ unless otherwise noted

Symbol	Parameter	Value	Unit
$V_{CEO}$	Collector-Emitter Voltage	40	V
$V_{EBO}$	Emitter-Base Voltage	4	V
$I_C$	Collector Current	100	mA
$T_J$	Junction Temperature	150	$^\circ C$
$T_{STG}$	Storage Temperature Range	-55 ~ 150	$^\circ C$

\* 1. These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

### Thermal Characteristics\* $T_a=25^\circ C$ unless otherwise noted

Symbol	Parameter	Max	Unit
$P_C$	Collector Power Dissipation, by $R_{\theta JA}$	625	mW
$R_{\theta JC}$	Thermal Resistance, Junction to Case	125	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	$^\circ C/W$

\* 2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

3. These ratings are based on a maximum junction temperature of 150 degrees C.

4. Device mounted on FR-4 PCB 36mm \* 1.5mm: Mounting pad for the collector lead min.6cm.

### Electrical Characteristics\* $T_a=25^\circ C$ unless otherwise noted




Symbol	Parameter	Test Condition	Min.	Max.	Unit
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 1mA, I_B = 0$	40		V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100\mu A, I_C = 0$	4		V
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = 30V$		100	nA
$h_{FE}$	DC Current Gain	$V_{CE} = 10V, I_C = 5mA$	40	400	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10mA, I_B = 1mA$		0.25	V
$V_{BE(on)}$	Base-Emitter On Voltage	$V_{CE} = -10V, I_C = -10mA$	-0.5	-1.2	V
$C_{cb}$	Output Capacitance	$V_{CB} = 10V, f = 100kHz$		4.0	pF
$f_T$	Current Gain Bandwidth Product	$V_{CE} = 10V, I_C = 5mA, f = 100MHz$	125		Mhz

\* DC Item are tested by Pulse Test : Pulse Width $\leq$ 300us, Duty Cycle $\leq$ 2%



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