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## MPSA42

### Silicon Complementary Transistors

### High Voltage, General Purpose Amplifier

**Absolute Maximum Ratings:** ( $T_A = +25^\circ\text{C}$ , unless otherwise specified)

Collector–Emitter Voltage, $V_{CEO}$ .....	300V
Collector–Base Voltage, $V_{CBO}$ .....	300V
Emitter–Base Voltage, $V_{EBO}$ .....	5V
Continuous Collector Current, $I_C$ .....	500mA
Collector Power Dissipation, $P_C$ .....	625mW
Operating Junction Temperature, $T_J$ .....	+150°C
Storage Temperature Range, $T_{stg}$ .....	–55° to +150°C
Thermal Resistance, Junction–to–Case, $R_{thJC}$ .....	83.3°C
Thermal Resistance, Junction–to–Ambient, $R_{thJA}$ .....	200°C/W

**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, I_B = 0$	300	–	–	V
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}, I_E = 0$	300	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\mu\text{A}, I_C = 0$	5	–	–	V
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 200\text{V}, I_E = 0$	–	–	0.25	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5\text{V}, I_C = 0$	–	–	0.1	$\mu\text{A}$
<b>ON Characteristics</b>						
DC Current Gain	$h_{fe}$	$I_C = 1\text{mA}, V_{CE} = 10\text{V}$ $I_C = 10\text{mA}, V_{CE} = 10\text{V}$ $I_C = 30\text{mA}, V_{CE} = 10\text{V}$	60 80 75	– – –	– 250 –	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 20\text{mA}, I_B = 2\text{mA}$	–	–	0.2	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 20\text{mA}, I_B = 2\text{mA}$	–	–	0.9	V
Transition Frequency	$f_T$	$V_{CE} = 20\text{V}, I_C = 10\text{mA},$ $f = 30\text{MHz}$	50	–	–	MHz

