

**MPS2222A****NPN EPITAXIAL SILICON TRANSISTOR**

T-29-21

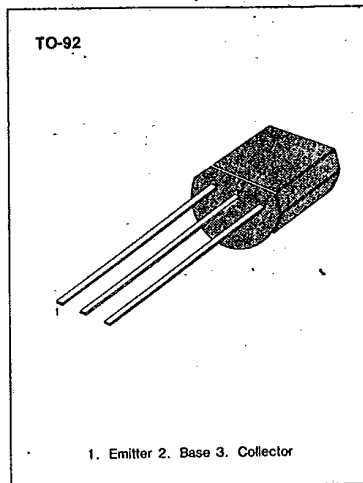
**GENERAL PURPOSE TRANSISTOR**

- Collector-Emitter Voltage:  $V_{CE0} = 40V$
- Collector Dissipation:  $P_C (\text{max}) = 625mW$

**ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^\circ C$ )**

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	75	V
Collector-Emitter Voltage	$V_{CEO}$	40	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Collector Current	$I_C$	600	mA
Collector Dissipation	$P_C$	625	mW
Junction Temperature	$T_J$	150	$^\circ C$
Storage Temperature	$T_{stg}$	-55~150	$^\circ C$

\*Refer to MPS2222 for graphs

**ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ C$ )**

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C = 10\mu A, I_E = 0$	75			V
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C = 10mA, I_B = 0$	40			V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E = 10\mu A, I_C = 0$	6			V
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 60V, I_E = 0$			0.01	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 3V, I_C = 0$			10	nA
DC Current Gain	$h_{FE}$	$I_C = 0.1mA, V_{CE} = 10V$	35			
		$I_C = 1mA, V_{CE} = 10V$	50			
		$I_C = 10mA, V_{CE} = 10V$	75			
		* $I_C = 150mA, V_{CE} = 10V$	100		300	
		* $I_C = 500mA, V_{CE} = 10V$	40			
*Collector-Emitter Saturation Voltage	$V_{CE} (\text{sat})$	$I_C = 150mA, I_B = 15mA$			0.3	V
		$I_C = 500mA, I_B = 50mA$			1	V
*Base-Emitter Saturation Voltage	$V_{BE} (\text{sat})$	$I_C = 150mA, I_B = 15mA$		0.6	1.2	V
		$I_C = 500mA, I_B = 50mA$			2	V
Current Gain Bandwidth Product	$f_T$	$I_C = 20mA, V_{CE} = 20V$ $f = 100MHz$	300			MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 10V, I_E = 0, f = 1MHz$			8	pF
Turn On Time	$t_{on}$	$V_{CC} = 30V, I_C = 150mA$ $I_{B1} = 15mA, V_{BE} (\text{off}) = 0.5V$			35	ns
Turn Off Time	$t_{off}$	$V_{CC} = 30V, I_C = 150mA$ $I_{B1} = I_{B2} = 15mA$			285	ns
Noise Figure	NF	$I_C = 100\mu A, V_{CE} = 10V$ $R_S = 1K\Omega, f = 1KHz$			4	dB

\* Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$   
Also available as a PN2222A