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Signal Transistors

T-29-19

MPS3638, MPS3638A

Silicon Transistors



TO-92

The GE/RCA MPS3638 and 3638A are planar epitaxial passivated PNP silicon transistors intended for general purpose applications. The units feature low collector

saturation voltage, controlled current gain and excellent frequency response. These types are supplied in JEDEC TO-92 package.

MAXIMUM RATINGS, Absolute-Maximum Values:

COLLECTOR TO EMITTER VOLTAGE (V_{CE0})	-25 V
EMITTER TO BASE VOLTAGE (V_{EB0})	-4 V
COLLECTOR TO BASE VOLTAGE (V_{CB0})	-25 V
CONTINUOUS COLLECTOR CURRENT (I_C)	-350 mA
COLLECTOR CURRENT (Pulsed)*	-700 mA
TOTAL POWER DISSIPATION ($T_A \leq 25^\circ\text{C}$)	360 mW
TOTAL POWER DISSIPATION ($T_C \leq 25^\circ\text{C}$)	700 mW
DERATE FACTOR ($T_A > 25^\circ\text{C}$)	3.6 mW/ $^\circ\text{C}$
DERATE FACTOR ($T_C > 25^\circ\text{C}$)	7 mW/ $^\circ\text{C}$
OPERATING TEMPERATURE (T_J)	-65° to +125 °C
STORAGE TEMPERATURE (T_{STG})	-65° to +150 °C
LEAD TEMPERATURE, 1/16" \pm 1/32" (1.58mm \pm 0.8mm) from case at 10s max. (T_L)	+260 °C

*Pulse conditions: 10 μ s pulse width, 2% duty cycle.

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ELECTRICAL CHARACTERISTICS, At Ambient Temperature (T_A) = 25°C Unless Otherwise Specified

CHARACTERISTICS	SYMBOL	LIMITS						UNITS
		MPS3638			MPS3638A			
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	
Collector-Emitter Breakdown Voltage ($I_C = 10 \text{ mA}, I_B = 0$)	$V_{(BR)CEO}$	-25	-	-	-25	-	-	V
Collector-Base Breakdown Voltage ($I_C = 100 \mu\text{A}, I_E = 0$)*	$V_{(BR)CBO}$	-25	-	-	-25	-	-	
Emitter-Base Breakdown Voltage ($I_E = 10 \mu\text{A}, I_C = 0$)	$V_{(BR)EBO}$	-4	-	-	-4	-	-	
Collector Cutoff Current ($V_{CE} = 15\text{V}, V_{BE} = 0$) ($V_{CB} = -15\text{V}, V_{BE} = 0, T_A = 100^\circ\text{C}$)	I_{CES}	-	-	-35	-	-	-35	nA
		-	-	-10	-	-	-10	
DC Forward Current Transfer Ratio ($I_C = -1 \text{ mA}, V_{CE} = -10\text{V}$)	h_{FE}	-	-	-	80	-	-	-
($I_C = -10 \text{ mA}, V_{CE} = -10\text{V}$)*		20	-	-	100	-	-	
($I_C = -50 \text{ mA}, V_{CE} = -1\text{V}$)*		30	70	-	100	-	-	
($I_C = -300 \text{ mA}, V_{CE} = 2\text{V}$)*		20	40	-	20	50	-	
Collector-Emitter Saturation Voltage ($I_C = -50 \text{ mA}, I_B = 2.5 \text{ mA}$)*	$V_{CE(SAT)}$	-	-	-0.25	-	-	-0.25	V
($I_C = -300 \text{ mA}, I_B = -30 \text{ mA}$)*		-	-	-1	-	-	-1	
Base-Emitter Saturation Voltage ($I_C = -50 \text{ mA}, I_B = 2.5 \text{ mA}$)*	$V_{BE(SAT)}$	-	-	-1.1	-	-	-1.1	
($I_C = -300 \text{ mA}, I_B = -30 \text{ mA}$)*		-0.8	-	-0.2	-	-0.8	-0.2	
Small-Signal Forward Current Transfer Ratio ($I_C = -10 \text{ mA}, V_{CE} = -10\text{V}, f = 1 \text{ kHz}$)	h_{fe}	25	-	-	100	-	-	-
Output Capacitance, Common Base ($V_{CB} = -10\text{V}, f = 1 \text{ MHz}$)	C_{cb}	-	-	10	-	-	10	pF
Input Capacitance, Common Base ($V_{EB} = -0.5\text{V}, f = 1 \text{ MHz}$)	C_{eb}	-	-	35	-	-	35	
Gain Bandwidth Product ($V_{CE} = -3\text{V}, I_C = -50 \text{ mA}$)	f_T	-	100	-	-	100	-	MHz

*Pulse conditions: 300 μs pulse width, 2% duty cycle.**TERMINAL CONNECTIONS**

Lead 1 - Emitter
 Lead 2 - Base
 Lead 3 - Collector