

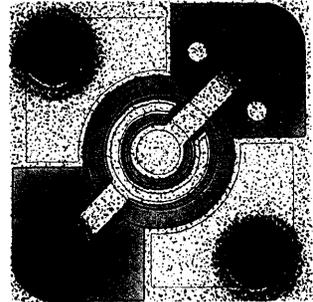
MMCF929, MMCF930 (SILICON) MMCF2484

Flip-Chip – NPN silicon Annular transistor family for low-level amplifier applications similar to the 2N929, 2N930 and 2N2484.

Primary Electrical Features:

- High DC Current Gain @ $I_C = 1.0 \text{ mAdc}$, $V_{CE} = 5.0 \text{ Vdc}$ –
 $h_{FE} = 200 \text{ (Min)}$ – MMCF2484
 $= 60 \text{ (Min)}$ – MMCF929
- Low Collector-Emitter Saturation Voltage –
 $V_{CE(sat)} = 0.25 \text{ Vdc (Max)}$ @ $I_C = 1.0 \text{ mAdc}$

FLIP-CHIP NPN SMALL-SIGNAL AMPLIFIER TRANSISTORS



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MAXIMUM RATINGS

Rating	Symbol	MMCF929 MMCF930	MMCF2484	Unit
Collector-Emitter Voltage	V_{CEO}	45	60	Vdc
Collector-Base Voltage	V_{CB}	45	60	Vdc
Emitter-Base Voltage	V_{EB}	5.0		Vdc
Collector Current – Continuous	I_C	50		mAdc

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage ($I_C = 10\text{ mAdc}$, $I_B = 0$) MMCF929, MMCF930 MMCF2484	BV_{CEO}	45 60	— —	Vdc
Collector-Base Breakdown Voltage ($I_C = 10\ \mu\text{Adc}$, $I_E = 0$) MMCF929, MMCF930 MMCF2484	BV_{CBO}	45 60	— —	Vdc
Emitter-Base Breakdown Voltage ($I_E = 10\ \mu\text{Adc}$, $I_C = 0$)	BV_{EBO}	5.0	—	Vdc
Collector Cutoff Current ($V_{CB} = 45\text{ Vdc}$, $I_E = 0$)	I_{CBO}	—	10	nAdc
Emitter Cutoff Current ($V_{EB} = 4.0\text{ Vdc}$, $I_C = 0$)	I_{EBO}	—	10	nAdc
ON CHARACTERISTICS				
DC Current Gain ($I_C = 0.1\text{ mAdc}$, $V_{CE} = 5.0\text{ Vdc}$) MMCF929 MMCF930 MMCF2484 ($I_C = 1.0\text{ mAdc}$, $V_{CE} = 5.0\text{ Vdc}$) MMCF929 MMCF930 MMCF2484 ($I_C = 10\text{ mAdc}$, $V_{CE} = 5.0\text{ Vdc}$) MMCF929 MMCF930 MMCF2484	h_{FE}	50 100 175 60 150 200 — — —	— — — — — — 400 700 900	—
Collector-Emitter Saturation Voltage ($I_C = 1.0\text{ mAdc}$, $I_B = 0.1\text{ mAdc}$)	$V_{CE(sat)}$	—	0.25	Vdc
Base-Emitter On Voltage ($I_C = 1.0\text{ mAdc}$, $V_{CE} = 5.0\text{ Vdc}$)	$V_{BE(on)}$	—	0.75	Vdc
DYNAMIC CHARACTERISTICS				
Current-Gain-Bandwidth Product ($I_C = 500\text{ mAdc}$, $V_{CE} = 5.0\text{ Vdc}$, $f = 30\text{ MHz}$)	f_T	30	—	MHz
Output Capacitance ($V_{CB} = 5.0\text{ Vdc}$, $I_E = 0$, $f = 1.0\text{ MHz}$) MMCF929, MMCF930 MMCF2484	C_{ob}	— —	8.0 6.0	pF

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