**Comparison of LM741 and OP07**

Unless mentioned all characteristics are typical and measured at 298K, supply voltage=

|  |  |  |
| --- | --- | --- |
| **Characteristics** | **LM741** | **OP07C** |
| Max supply voltage | ±22V | ±22V |
| Max differential input voltage | ±30 V | ±30 V |
| Max Input Voltage |  |  |
| Storage temperature Range | -65 to 150 °C | -65 to 150 °C |
| Input offset voltage  (Rs<10k | 1mV | 60 |
| Input offset voltage adjustment range |  |  |
| Input offset current | 20nA | 0.8nA |
| Input bias current | 80nA | 1.8nA |
| Input resistance | 0.3M | 33M |
| Output voltage swing  (RL>10k |  |  |
| Large signal voltage gain | 200V/mV  (VS =±15V,VO =±10V,RL ≥2 kΩ ) | 400V/mV  (VCC =15V,VO =1.4Vto11.4V, RL ≥ 500 kΩ ) |
| Common-mode rejection ratio | 95dB  (RS ≤10Ω,VCM =±12V) | 120dB  (VIC =±13V,RS =50Ω ) |
| SVRR | 150  (VS =±20VtoVS =±5V,RS ≤10Ω,TAMIN ≤TA ≤TAMAX) | V =±3Vto±18V,R =50Ω |
| Power Dissipation | 50mW | 80mW  (VO= 0, No load) |
| Slew Rate | 0.5V/ | 0.3V/  (RL≥2kΩ) |
| BandWidth | 1.5MHz | 0.6MHz |

**Inference:**

Observe that maximum characteristics are almost same for both the op amps except where the max input voltage range is more for OP07. However, the performance of OP07 is better than LM741 considering input offset voltage, input bias current, input resistance, large signal voltage gain, CMRR and SVRR considering their typical applications. But LM741 has a slightly greater output signal swing, lower power dissipation and larger slew rate( assuming the application requires the need to replicate the exact signal), and larger bandwidth.

Thus, LM741 is used in

* Comparators
* Multivibrators
* DC Amplifiers
* Summing Amplifiers
* Integrator or Differentiators
* Active Filters

and OP07 is used in

* Wireless Base Station Control Circuits
* Optical Network Control Circuits
* Instrumentation
* Sensors and Controls
* Precision Filters

Observe LM741 is the most widely used opamp for basic non precision operations whereas OP07 is used more for instrumentation, sensors, and precision applications. Consequently, LM741 is cheaper than OP07.

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SC20B101