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.SUBCKT MCP6241 1 2 3 4 5
* Input Stage
V10 3 10 -500M
R10 10 11 6.90K
R11 10 12 6.90K
C11 11 12 7.20P
C12 1 0 6.00P
E12 71 14 POLY(4) 20 0 21 0 26 0 27 0 5.00M 34.9 34.9 1 1
G12 1 0 62 0 1m
M12 11 14 15 15 NMI
M14 12 2 15 15 NMI
G14 2 0 62 0 1m
C14 2 0 6.00P
I15 15 4 50.0U
V16 16 4 -300M
GD16 16 1 TABLE {V(16,1)} ((-100,-1p)(0,0)(1m,1u)(2m,1m))
V13 3 13 -300M
GD13 2 13 TABLE {V(2,13)} ((-100,-1p)(0,0)(1m,1u)(2m,1m))
R71 1 0 20.0E12
R72 2 0 20.0E12
R73 1 2 20.0E12
I80 1 2 500E-15
* Noise, PSRR, and CMRR
I20 21 20 423U
D20 20 0 DN1
D21 0 21 DN1
G26 0 26 POLY(2) 3 0 4 0 0.00 -158U -3U
R26 26 0 1
G27 0 27 POLY(2) 1 0 2 0 -776U 35.5U 35.5U
R27 27 0 1
* Open Loop Gain, Slew Rate
G30 0 30 12 11 1
R30 30 0 1.00K
C30 30 0 10p
G31 0 31 3 4 2
I31 0 31 DC 65
R31 31 0 1 TC=3.67M,5.32U
GD31 30 0 TABLE {V(30,31)} ((-100,-1u)(0,0)(1m,.1)(2m,2))
G32 32 0 3 4 -1.9
I32 32 0 DC 105
R32 32 0 1 TC=3.43M,4.42U
GD32 0 30 TABLE {V(30,32)} ((-2m,2)(-1m,.1)(0,0)(100,1u))
G33 0 33 30 0 1m
R33 33 0 1K
G34 0 34 33 0 316M
R34 34 0 1K
C34 34 0 81.8U
G37 0 37 34 0 1m
R37 37 0 1K
C37 37 0 22.7P
G38 0 38 37 0 1m
R38 39 0 1K
L38 38 39 26.5U
E38 35 0 38 0 1
G35 33 0 TABLE {V(35,3)} ((-1,-1n)(0,0)(48,1n))(49,1)
G36 33 0 TABLE {V(35,4)} ((-49,-1)((-48,-1n)(0,0)(1,1n))
* Output Stage
R80 50 0 100MEG
G50 0 50 57 96 2
R58 57 96 0.50
R57 57 0 1650
C58 5 0 2.00P
G57 0 57 POLY(3) 3 0 4 0 35 0 0 0.21M 0.21M 0.6M
GD55 55 57 TABLE {V(55,57)} ((-2m,-1)(-1m,-1m)(0,0)(10,1n))
GD56 57 56 TABLE {V(57,56)} ((-2m,-1)(-1m,-1m)(0,0)(10,1n))
E55 55 0 POLY(2) 3 0 51 0 -0.85M 1 -51.0M
E56 56 0 POLY(2) 4 0 52 0 1.33M 1 -42.0M
R51 51 0 1k
R52 52 0 1k
GD51 50 51 TABLE {V(50,51)} ((-10,-1n)(0,0)(1m,1m)(2m,1))
GD52 50 52 TABLE {V(50,52)} ((-2m,-1)(-1m,-1m)(0,0)(10,1n))
G53 3 0 POLY(1) 51 0 -50.0U 1M
G54 0 4 POLY(1) 52 0 -50.0U -1M

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* Current Limit
G99 96 5 99 0 1
R98 0 98 1 TC=-1.92M,-7.58U
G97 0 98 TABLE { V(96,5) } ((-11.0,-21.0M)(-1.00M,-20.7M)(0,0)(1.00M,20.7M)(11.0,21.0M))
E97 99 0 VALUE { V(98)*((V(3)-V(4))*166M + 416M)}
D98 4 5 DESD
D99 5 3 DESD
* Temperature / Voltage Sensitive IQuiscent
R61 0 61 1 TC=3.14M,7.28U
G61 3 4 61 0 1
G60 0 61 TABLE {V(3, 4)}
+ ((0,0)(750M,450N)(800M,1.00U)(900M,4.00U)
+ (1.2,41.0U)(1.4,45.0U)(5.5,46.0U))
* Temperature Sensistive offset voltage
I73 0 70 DC 1uA
R74 0 70 1 TC=3.00U
E75 1 71 70 0 1
* Temp Sensistive IBias
I62 0 62 DC 1uA
R62 0 62 REXP 55.78U
* Models
.MODEL NMI NMOS(L=2.00U W=42.0U KP=20.0U LEVEL=1 )
.MODEL DESD D N=1 IS=1.00E-15
.MODEL DN1 D IS=1P KF=146E-18 AF=1
.MODEL REXP RES TCE=10.14
.ENDS MCP6241

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