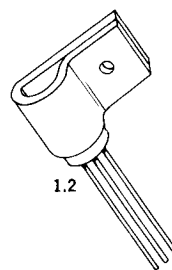
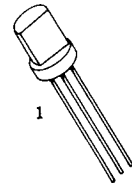


# NPN SILICON SIGNAL MEDIUM CURRENT GENERAL PURPOSE AMPLIFIERS AND SWITCHES



Type	$h_{FE}$ @ 5V, 2mA	$V_{CE(sat)}$ @ 10mA Min. (V)	$V_{CE(sat)}$ @ 50mA, 3mA Max. (V)	$P_T$ $T_A=25^\circ C$ (mW)	$C_{cb}$ @ 10V Typical (pF)	$f_t$ Typical (MHz)	Comments	Package Outline No.	Specifi- cation Sheet No.
2N3402	75-225	25	0.3	560 <sup>1</sup>	5.0	150	Higher power devices suited for high level linear amplifiers and medium speed switching.	1.2	40.69
2N3403	180-540								
2N3404	75-225	50	0.3	560 <sup>1</sup>	5.0	150			
2N3405	180-540								
2N3414	75-225	25	0.3	360	5.0	150	Medium power devices with 3 to 1 beta spreads. Ideal for high level amplifiers and medium speed switches.	1	40.69
2N3415	180-540								
2N3416	75-225	50	0.3	360	5.0	150			
2N3417	180-540								
2N4424	180-540	40	0.3	360	5.0	150	40 volt version of 2N3417	1	40.19
2N4425	180-540			560 <sup>1</sup>			40 volt version of 2N3405	1.2	
2N5174	40-600 <sup>2</sup>	75	0.95 <sup>3</sup>	360	3	135	Ideal for driving high voltage indicating devices. Higher voltage models available upon request.	1	40.46
2N5175	55-160 <sup>2</sup>	100							
2N5176	140-300 <sup>2</sup>	100							
2N4256	100-500	30 ( $V_{CE(sat)}$ )	0.2 <sup>4</sup>	360	2	150	Low level medium speed switch with low $V_{CE(sat)}$ and guaranteed QSB	1	45.56

<sup>1</sup> Case is Outline No. 1 with "J1" Heatsink

<sup>3</sup>  $V_{CE(sat)}$  Max. @  $I_C=10mA$ ,  $I_B=1mA$

<sup>2</sup>  $h_{FE}$  @  $I_C=10mA$ ,  $V_{CE}=5V$

<sup>4</sup>  $V_{CE(sat)}$  Max. @  $I_C=50mA$ ,  $I_B=25mA$

# NPN SILICON SIGNAL HIGH CURRENT GENERAL PURPOSE AMPLIFIERS

Type	$h_{FE}$ @ 2V, 2mA	$V_{CE(sat)}$ @ 10mA Min. (V)	$V_{CE(sat)}$ @ 500mA, 50mA Max. (V)	$P_T$ $T_A=25^\circ C$ (mW)	$C_{cb}$ @ 10V Typical (pF)	$f_t$ Typical (MHz)	PNP Comple- ment	Comments	Package Outline No.	Specifi- cation Sheet No.
D33D21	60-200 <sup>2</sup>	25	0.75	500 <sup>1,2</sup>	9.4	150	D29E1	These general purpose devices feature excellent beta linearity over a wide range of collector currents. Ideal for push-pull, complementary driver and output stages. Heatsinked versions available as well as complementary PNP devices.	1	40.85
D33D22	150-500 <sup>4</sup>					165	D29E2			
D33D24	60-120	120	D29E4							
D33D25	100-200	135	D29E5							
D33D26	150-300	150	D29E6							
D33D27	250-500	165	D29E7							
D33D29	60-120	120	D29E9							
D33D30	100-200	135	D29E10							

<sup>1</sup>  $P_T$  at  $T_C=25^\circ C$ , 1000mW

<sup>2</sup> All units available with heatsink which raises  $P_T$  to 700mW,  $T_A=25^\circ C$ ; to specify a heatsinked version add "J1" to the part no. Example: A D33D21 with a heatsink becomes a D33D21J1. Package Outline No. 1.2. See page 20.

<sup>3</sup> 45 min  $h_{FE}$  at  $V_{CE}=2V$ ,  $I_C=500mA$

<sup>4</sup> 60 min  $h_{FE}$  at  $V_{CE}=2V$ ,  $I_C=500mA$

# NPN SILICON SIGNAL MONOLITHIC DARLINGTON AMPLIFIERS

Type	$h_{FE}$ @ 5V, 2mA X1000	$V_{CE(sat)}$ @ 10mA Min. (V)	$V_{CE(sat)}$ @ 200mA, 2mA Max. (V)	$P_T$ $T_A=25^\circ C$ (mW)	$C_{cb}$ @ 10V Typical (pF)	$f_t$ Typical (MHz)	Comments	Package Outline No.	Specifi- cation Sheet No.
D16P1	2 MIN	12					Full line distribution type optimized for high performance and low cost	1	40.82
2N5305	2-20	25	1.4	400 <sup>1</sup>	3.5	60	High input impedance—typically 650K ohms—ideal for low level, high gain, low noise amplifier applications. "A" versions feature guaranteed wideband audio HF. Excellent as medium speed switch. Also available in TO-18 package—2N5305, 2N5306, 2N5307, 2N5308 and "A" versions.	1	40.78
2N5306	7-70								
2N5306A	7-70								
2N5307	2-20								
2N5308	7-70								
2N5308A	7-70	40							40.79

<sup>1</sup> Heat sinked versions available which raise  $P_T$  to 600mW at  $T_A=25^\circ C$ . Heatsinked versions are HS5305, HS5306, HS5307, HS5308. Package Outline No. 1.2. See page 20.