UNIVERSITI SAINS MALAYSIA

Peperiksaan Semester Pertama
Sidang Akademik 2005/2006

November 2005

EEU 202 – ELEKTRONIK UNTUK JURUTERA

Masa : 2 Jam

ARAHAN KEPADA CALON:-

Sila pastikan kertas peperiksaan ini mengandungi **SEPULUH (10)** muka surat beserta **Lampiran (3 mukasurat)** bercetak dan **LIMA (5)** soalan sebelum anda memulakan peperiksaan ini.

Jawab **EMPAT (4)** soalan.

Agihan markah diberikan di sudut sebelah kanan soalan berkenaan.

Semua soalan hendaklah dijawab di dalam Bahasa Malaysia.

...2/-

Soalan 1

(a) Berikan dua contoh unsur yang boleh ditambahkan ke silikon tulen untuk menghasilkan semikonduktor jenis N. (Sila rujuk jadual berkala yang dilampirkan.) Secara ringkas, terangkan mengapa unsur-unsur ini dipilih.

Give two examples of element that can be added to the intrinsic (pure) silicon to create an N-type semiconductor. (Please refer to the periodic table attached.) In brief, describe why these elements are chosen.

(10%)

(b) Apakah yang diwakili oleh simbol-simbol dalam Rajah 1 ini.

What do these symbols present in Figure 1?

(i) 

(ii) 

(iii) 

(iv) 

(v) 

(vi) 

Rajah 1
Figure 1

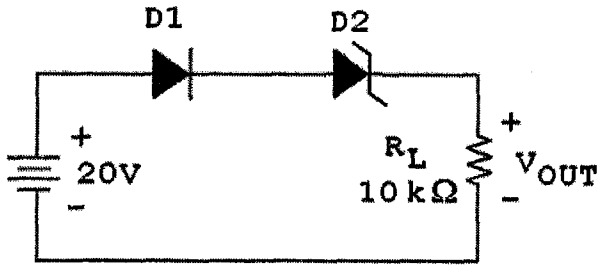
(30%)

(c) Bagi setiap litar dalam Rajah 2 berikut, tentukan nilai kejatuhan voltan merentasi R_L, V_{OUT}. D1 ialah diod 1N4004, manakala D2 ialah diod 1N4740AT. (Sila rujuk helaian-helaian data yang dilampirkan untuk menyelesaikan masalah ini).

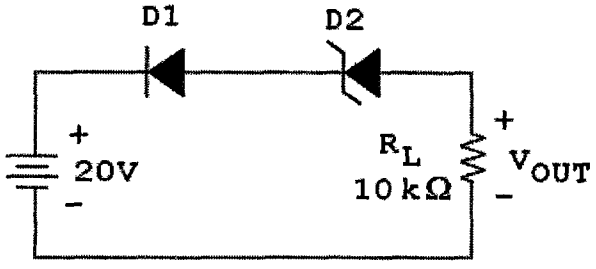
For each of these circuits in Figure 2, determine the value of the voltage across R_L, V_{OUT}. D1 is a 1N4004 diode, while D2 is a 1N4740AT diode. (Please refer to the datasheets attached to solve this problem).

...3/-

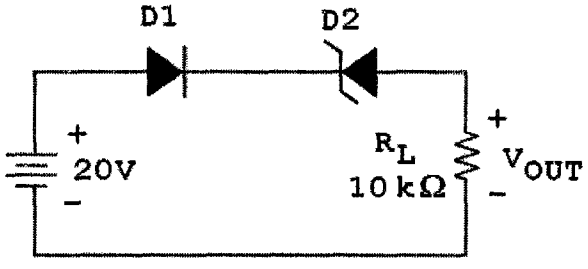
(i)



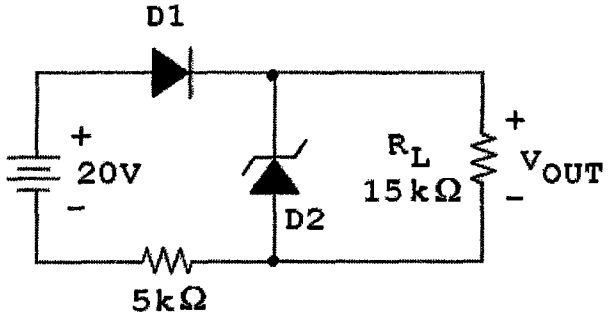
(ii)



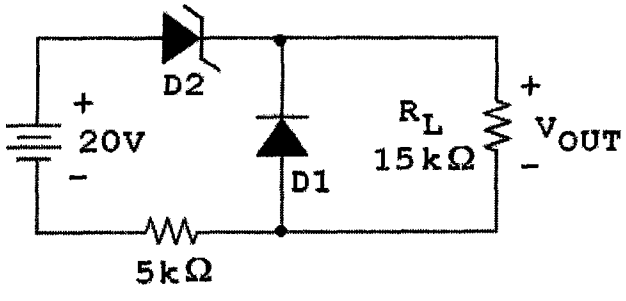
(iii)



(iv)



(v)

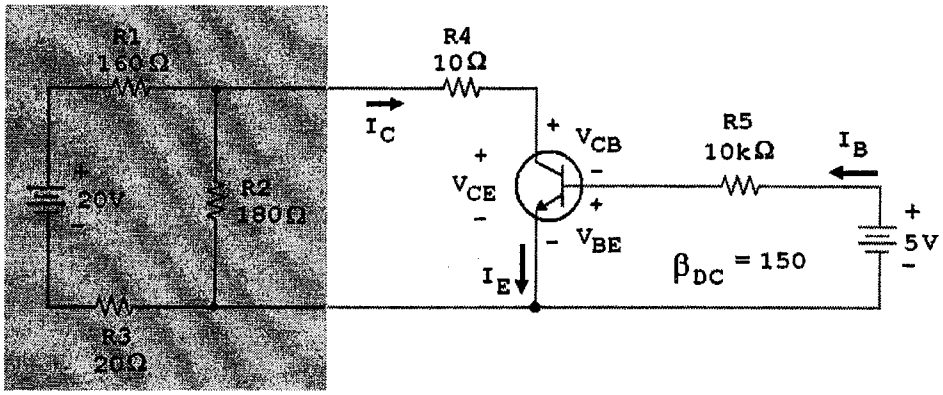


Rajah 2
Figure 2

(60%)

...4/-

Soalan 2



Rajah 3
Figure 3

(a) Lukiskan semula litar Rajah 3 di atas dengan menggantikan litar di dalam kotak A dengan litar setara Thevenin. Tentukan nilai:

Redraw the circuit in Figure 3 above by changing the circuit in box A with a Thevenin equivalent circuit. Determine the value of:

(i) Voltan setara Thevenin, V_{TH}.

Thevenin equivalent voltage, V_{TH}.

(ii) Rintangan setara Thevenin, R_{TH}.

Thevenin equivalent resistance, R_{TH}.

(30%)

(b) Tentukan nilai I_B, I_C, I_E, V_{BE}, V_{CE}, dan V_{CB}.

Determine the value of I_B, I_C, I_E, V_{BE}, V_{CE}, dan V_{CB}.

(60%)

(c) Tentukan nilai kuasa yang dilesapkan oleh perintang R5.

Determine the power dissipated by resistor R5.

(10%)

...5/-

Soalan 3

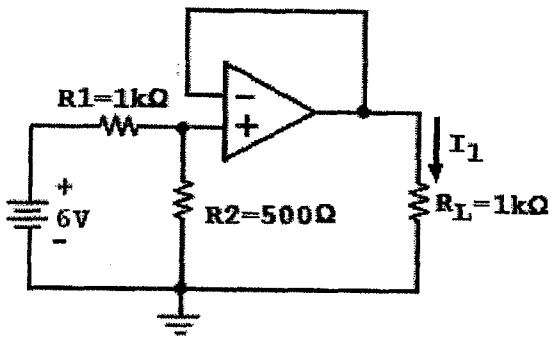
(a) Lukiskan model litar setara op-amp bagi Rajah 4 di bawah.

Draw an equivalent circuit model of op-amp shown in the Figure 4 below.

(10%)

(b) Tentukan nilai I_1.

Determine the value of I_1.



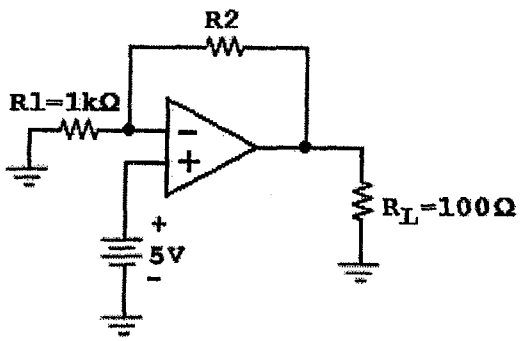
Rajah 4
Figure 4

(20%)

(c) Apakah fungsi penguat kendalian di dalam litar berikut? Tentukan nilai gandaan voltan penguat, A_V, jika kuasa yang dilesapkan oleh perintang R_L adalah 1W. Apakah nilai R2 dalam Rajah 5?

What is the function of the operational amplifier (op-amp) in the following circuit? Determine the voltage gain of the amplifier, A_V, if the power dissipated by R_L is equal to 1W. What is the value of R2 in Figure 5?

(20%)



Rajah 5
Figure 5

...6/-

(d) Tentukan nilai V_{OUT} bagi litar dalam Rajah 6, apabila:

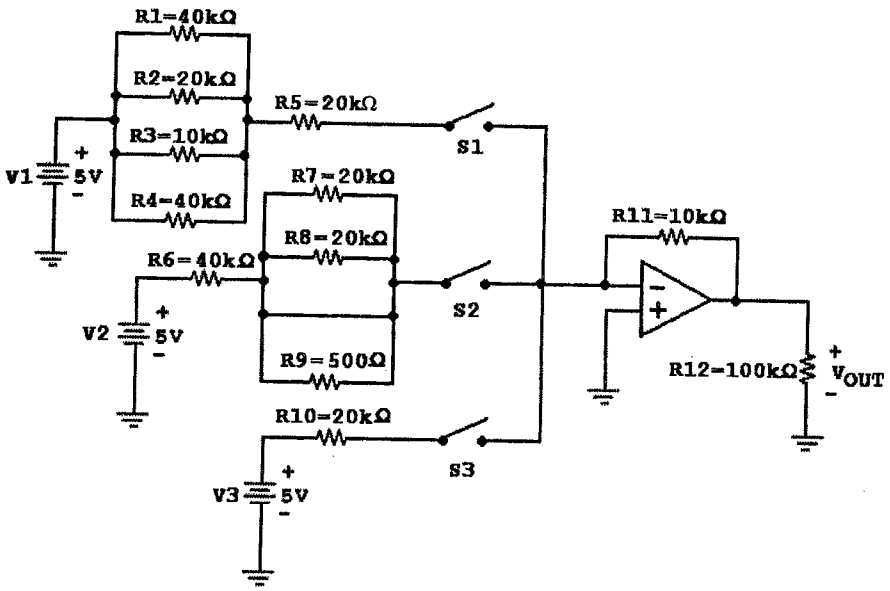
Determine the value of V_{OUT} for the circuit in Figure 6, when:

(i) S1 dimatikan, S2 dimatikan, dan S3 dihidupkan.
S1 is turned OFF, S2 is turned OFF, and S3 is turned ON.

(ii) S1 dihidupkan, S2 dimatikan, dan S3 dimatikan.
S1 is turned ON, S2 is turned OFF, and S3 is turned OFF.

(iii) S1 dimatikan, S2 dihidupkan, dan S3 dimatikan.
S1 is turned OFF, S2 is turned ON, and S3 is turned OFF.

(iv) S1 dihidupkan, S2 dihidupkan, dan S3 dihidupkan.
S1 is turned ON, S2 is trned ON, and S3 is turned ON.



(50%)

Rajah 6
Figure 6

...7/-

Soalan 4

(a) Dengan menggunakan peta Karnaugh, ringkaskan persamaan berikut:

Use a Karnaugh map to minimize the following expression:

$$\overline{B}\,\overline{C}\,\overline{D} + \overline{A}B\overline{C}\,\overline{D} + A\overline{B}\,\overline{C}\,\overline{D} + \overline{A}\,\overline{B}CD + A\overline{B}CD + \overline{A}\,\overline{B}C\overline{D} + \overline{A}B\overline{C}\,\overline{D} + AB\overline{C}\,\overline{D} + A\overline{B}C\overline{D}$$

(20%)

(b) Gunakan teori De Morgan ke atas persamaan berikut:

Apply De Morgan theorem to each expression:

(a) $\overline{A+\overline{B}}$

(b) $\overline{\overline{A}B}$

(c) $\overline{A+B+C}$

(d) $\overline{ABC}$

(20%)

(c) Dengan menggunakan flip-flop JK, rekabentuk pembilang binari 3 bit.

Design a 3 bit binary counter using JK flip-flop.

(60%)

...8/-

Soalan 5

(a) Gunakan teori De Morgan ke atas persamaan berikut:

Apply De Morgan theorems to each of the following expression:

(a) $\overline{A(B+C)}$

(b) $\overline{AB}+\overline{CD}$

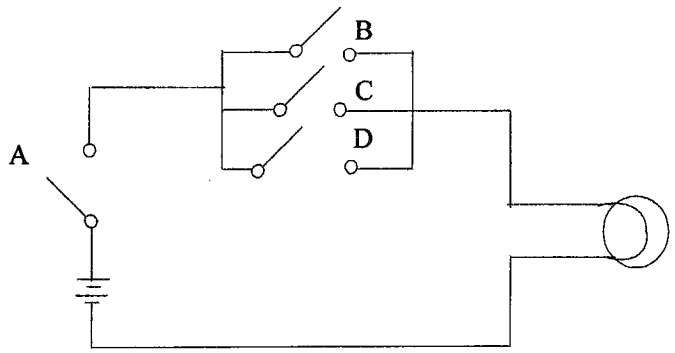
(c) $\overline{AB+CD}$

(d) $\overline{(A+\overline{B})(\overline{C}+D)}$

(20%)

(b) Dapatkan simbol get logik dan Persamaan Boolean bagi litar dalam Rajah 7.

Determine the logic gate symbol and Boolean expression for the circuit in Figure 7.



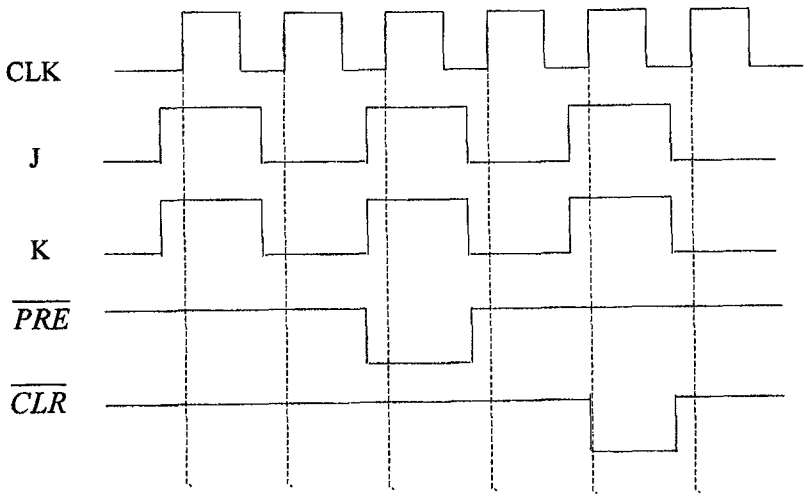
Rajah 7
Figure 7

(20%)

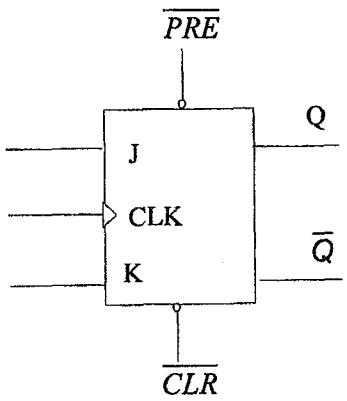
...9/-

(c) Dapatkan bentuk gelombang Q mengikut isyarat jam jika isyarat yang ditunjukkan dalam Rajah 8 diberikan kepada masukan flip-flop JK bagi litar dalam Rajah 9. Andaikan Q pada mulanya berada pada logik 0.

Determine the Q waveform relative to the clock if the signals shown in Figure 8 are applied to the inputs of the JK flip-flop as shown in Figure 9. Assume that Q is initially low.



Rajah 8
Figure 8



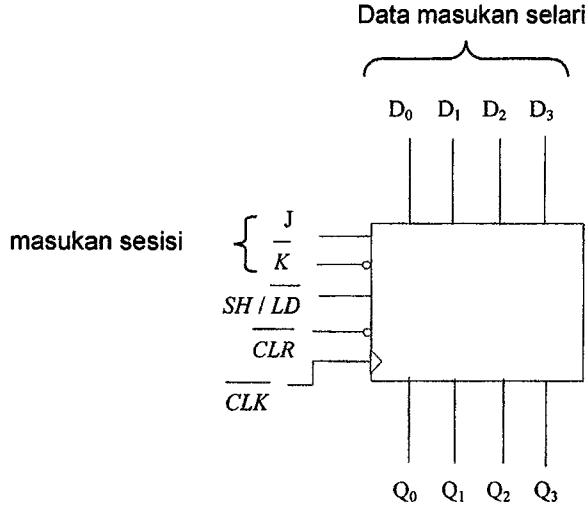
Rajah 9
Figure 9

(30%)

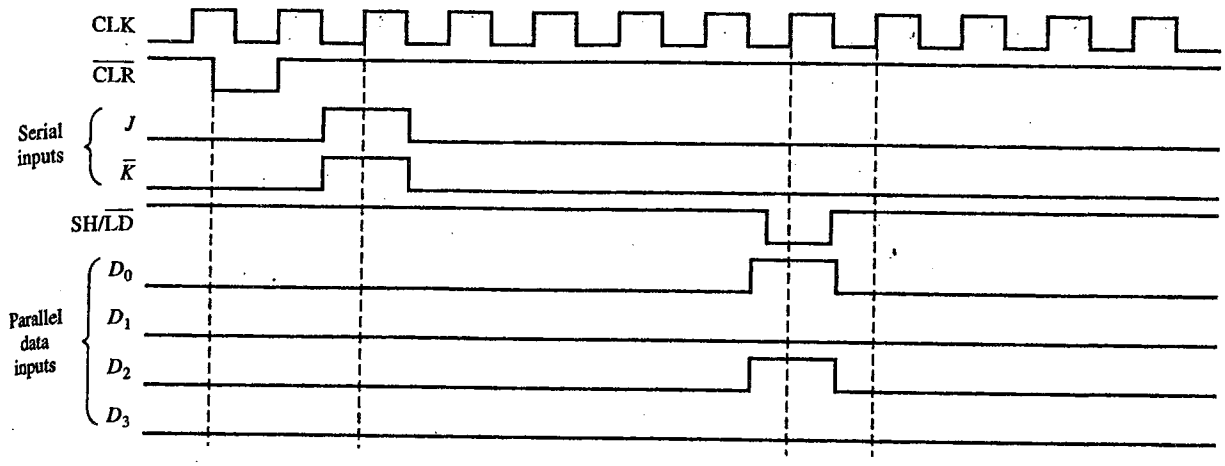
...10/-

(d) 74LS195A merupakan daftar anjak masukan selari–keluaran selari. Ia juga boleh digunakan untuk operasi masukan sesiri–keluaran selari. Blok logik untuk 74LS195A ditunjukkan dalam Rajah 10. Dapatkan gelombang keluaran jika isyarat yang ditunjukkan dalam Rajah 11 digunakan sebagai masukan kepada 74LS195A.

74LS195A is a parallel in-parallel out shift register. It can also be used as a serial-in parallel-out shift register. The logic block is shown in Figure 10. Determine the output waveform if the signals shown in Figure 11 are applied to the inputs of the 74LS195A.



Rajah 10
Figure 10



Rajah 11
Figure 11 (30%)

oooOooo

JADUAL PERKALAAN UNSUR

Jadual Isotop-isotop Radioaktif

Ac 227(22y)β^-,α
Ag 110(24s)β^-,γ
111(7.5d)β^-,γ
Am241(458y)α,γ,α
242(16.0h)β^-,K,α,γ
243(8000y)α,γ
As 76(26.7h)β^-,γ
77(39h)β^-,γ
At 210(8.3h)K,α,γ
211(7.2h),Kα,γ
Au 198(2.69d)β^-,γ
Be 131(12d)K,γ
133(7.2y)K,γ,e^-
Bi ^{210}(5d)β^-,α
Bk 245(4.9d)K,α,γ
249(314d)β^-,α,SF
Br 82(36h)β^-,γ
C ^{14}(5700 y)β^-
Ca 41(8x10^{4}y)K
45(165d)β^-
47(4.5d)β^-,γ
Cd 115(43d)β^-,γ
Ce 141(32d)β^-,γ
143(33h)β^-,γ
144(285d)β^-,γ
Cf 246(35h)α,γ,SF
249(360y)α,γ,SF
251(800 y)γ
Cl 36(3x10^{5}y)β^-
Cm 243(35y)α,γ
245(9300y)α,γ
247(10^{7}y)
Co 58(71d),K,β^+,γ
60(5.27y)β^-,γ
Cr 51(27d),K,γ
Cs 134(2.0y)β^-,γ
135(3x10^{6}y)β^-
137(30y)β^-,γ
Cu 64(12.8h)K,β^-,β^+,γ
Es 253(20d)α,γ,SF
254(1y)α,SF
Eu 154(16y)β^-,γ
155(1.8y)β^-,γ
Fe 55(2.6y)K
59(45d)β^-,γ
Fm 255(20h)α
Fr ^{223}(22m)β^-,γ,α
Ga 72(14.1h),β^-,γ
Gd 153(236d)K,γ,e^-
159(18h)β^-,γ
Ge 71(11d)K
H 3(12.3y)β^-
Hf 181(45d)β^-,γ,e
Hg 197(65h)K,γ,e^-
203(47d)β^-,γ,e
Ho 166(27.3h)β^-,γ
I 129(10^{7}y)β^-,γ,e
131(8.05d)β^-,γ
In 114(50d)γ
Ir 192(74.4d)β^-,γ
K ^{40}(10^{9}y)β^+,K,γ
42(12.4h),β^-,γ
La 140(40.2h)β^-,γ
Lu ^{176}(10^{14}y)β^-,K,γ
177(6.8d)β^-,γ
Md 256(90m)K,SF
Mo 99(67h)β^-,γ
Na 22(2.6y)β^+,K,γ
24(15h)β^-,γ
Nd 147(11.1d)β^-,γ
Ni 63(125y)β^-
59(8x10^{4}y),K
Np 237(2.2x10^{6}y)α,γ
239(2.33d)β^-,γ
Os 191(15d)β^-,γ,e^-
P 32(14.2d)β^-
Pa 231(34000y)α,γ
Pb 210(19.4y)β^-,γ,e^-
202(10^{5}y)K
Pd 103(17d)K,γ
Pm 147(2.6y)β^-
Po 210(138.4d)α,γ
209(103 y)α,K,γ
Pr 143(13.8d)β^-
Pt 197(18h)β^-,γ
Pu 242(3.8 x 10^{5}y)α,SF
241(13y)β^-,α,γ
239(24300y)α,γ,SF
Ra 226(1620y)α,γ
Rb 86(18.6d)β^-,γ
Re 188(16.7h)β^-,γ
186(3.7d)β^-,γ
Rn 222(3.82d)α
Ru 103(40d)β^-,γ
97(2.9d),K,γ,e^-
S 35(88d)β^-
Sb 122(2.8d)β^-,K,β^+,γ
124(60d)β^-,γ
Sc 46(84d)β^-,γ
Se 75(120 d)K,γ
Sm 153(47h)β^-,γ
145(340d)K,γ
Sn 113(119d)K,λ,γ,e^-
Sr 90(28y)β^-
89(51d)β^-,γ
85(64d)K,γ
Te 182(115d)β^-,γ
Tb 160(73d)β^-,γ
Tc 99(2x10^{5}y)β^-
97(10^{6}y)K
Te 127(9.3h)β^-
Th 232(1.4x10^{10}y)α,γ,SF
228(1.91y)β^-
Tl 204(3.81y)β^-,K
Tm 170(134d)β^-,γ,e^-
U ^{238}(4.5x10^{9}y)α,γ,SF
^{234}(2.5x10^{5}y)α,γ,SF
^{235}(7.1x10^{8}y)α,γ,SF
233(1.6x10^{5}y)α,γ
W 185(75d)β^-
Y 90(64h)β^-,e^-
Yb 175(4.2d)β^-,γ
169(31d)K,γ,e^-
Zn 65(245d)K,β^+,γ
Zr 95(65d)β^-,γ,e^-
93(9x10^{5}y)β^-,γ

Isotop-isotop radioaktif yang wujud semulajadi ditunjukkan oleh nombor jisim berwarna biru. Tempuruh dalam kandungan dimana s,m,h,d dan y menunjukkan saat, minit, jam, hari dan tahun masing-masing. Simbol-simbol menghalkan kaedah reputan dan pancaran yang dihasilkan diterangkan seperti berikut:

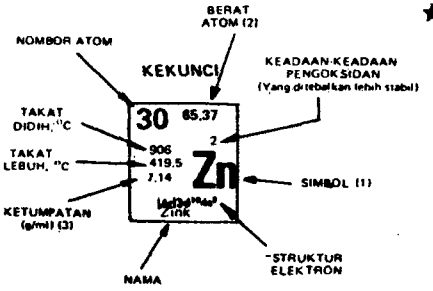
α zarah alfa
β^- zarah beta
β^+ positron
K tangkapan elektron K
L Tangkapan elektron L
SF pembelahan spontan
γ sinaran gamma
e penukaran elektron dalam.

KALAAN ▶

KUMPULAN

	IA	IIA	IIIB	IVB	VB	VIB	VIIB	VIII			IB	IIB	IIIA	IVA	VA	VIA	VIIA	VIIIA
1	1 1.00797 −252.7 −259.2 0.071 H Hidrojen																	2 4.0026 −268.9 −269.7 0.126 He Helium
2	3 6.939 1330 180.5 0.53 Li Litium	4 9.0122 2770 1277 1.85 Be Berilium											5 10.811 — (2030) 2.34 B Boron	6 12.01115 4830 3727 2.26 C Karbon	7 14.0067 −195.8 −210 0.81 N Nitrogen	8 15.9994 −183 −218.8 1.14 O Oksigen	9 18.9984 −188.2 −219.6 1.505 F Fluorin	10 20.183 −246 −248.6 1.20 Ne Neon
3	11 22.9898 892 97.8 0.97 Na Natrium	12 24.312 1107 650 1.74 Mg Magnesium											13 26.9815 2450 660 2.70 Al Aluminium	14 28.086 2680 1410 2.33 Si Silikon	15 30.9738 280w 44.2w 1.82w P Fosforus	16 32.064 444.6 119.0 2.07 S Sulfur	17 35.453 −34.7 −101.0 1.56 Cl Klorin	18 39.948 −185.8 −189.4 1.40 Ar Argon
4	19 39.102 760 63.7 0.86 K Kalium	20 40.08 1440 838 1.55 Ca Kalsium	21 44.956 2730 1539 3.0 Sc Skandium	22 47.90 3260 1668 4.51 Ti Titanium	23 50.942 3450 1900 6.1 V Vanadium	24 51.996 2665 1875 7.19 Cr Kromium	25 54.938 2150 1245 7.43 Mn Mangan	26 55.847 3000 1536 7.86 Fe Ferum	27 58.933 2900 1495 8.9 Co Kobalt	28 58.71 2730 1453 8.9 Ni Nikel	29 63.54 2595 1083 8.96 Cu Kuprum	30 65.37 906 419.5 7.14 Zn Zink	31 69.72 2237 29.8 5.91 Ga Galium	32 72.59 2830 937.4 5.32 Ge Germanium	33 74.922 613 817 5.72 As Arsenik	34 78.96 685 217 4.79 Se Selenium	35 79.909 58 7.2 3.12 Br Bromin	36 83.80 −152 −157.3 2.6 Kr Kripton
5	37 85.47 688 38.9 1.53 Rb Rubidium	38 87.62 1380 768 2.6 Sr Strontium	39 88.905 2927 1509 4.47 Y Itrium	40 91.22 3580 1852 6.49 Zr Zirkonium	41 92.906 3300 2468 8.4 Nb Niobium	42 95.94 5560 2610 10.2 Mo Molibdenum	43 (98) — 2140 11.5 Tc Teknitium	44 101.07 4900 2500 12.2 Ru Rutenium	45 102.905 4500 1966 12.4 Rh Rodium	46 106.4 3980 1552 12.0 Pd Paladium	47 107.870 2210 960.8 10.5 Ag Argentum	48 112.40 765 320.9 8.65 Cd Kadmium	49 114.82 2000 156.2 7.31 In Indium	50 118.69 2270 231.9 7.30 Sn Stanum	51 121.75 1380 630.5 6.62 Sb Antimoni	52 127.60 989.8 449.5 6.24 Te Telurium	53 126.904 183 113.7 4.94 I Iodin	54 131.30 108.0 −111.9 3.06 Xe Xenon
6	55 132.905 690 28.7 1.90 Cs Sesium	56 137.34 1640 714 3.5 Ba Barium	57 138.91 3470 920 6.17 La Lantanum	72 178.49 5400 2222 13.1 Hf Hafnium	73 180.948 5425 2996 16.6 Ta Tantalum	74 183.85 5930 3410 19.3 W Wolfram	75 186.2 5900 3180 21.0 Re Renium	76 190.2 5500 3000 22.6 Os Osmium	77 192.2 5300 2454 22.5 Ir Iridium	78 195.09 4530 1769 21.4 Pt Platinum	79 196.967 2970 1063 19.3 Au Aurum	80 200.59 357 38.4 13.6 Hg Merkuri	81 204.37 1457 303 11.85 Tl Talium	82 207.19 1725 327.4 11.4 Pb Plumbum	83 208.980 1560 271.3 9.8 Bi Bismut	84 (210) — 254 (9.2) Po Polonium	85 (210) — (302) — At Astatin	86 (222) (−61.8) (−71) — Rn Raonn
7	87 (223) — (27) Fr Fransium	88 (226) — 700 5.0 Ra Radium	89 (227) — 1050 — Ac Aktinium	104														

★ 6	58 140.12 3468 795 6.67 Ce Serium	59 140.907 3127 935 6.77 Pr Praseodimium	60 144.24 3027 1024 7.00 Nd Neodimium	61 (147) — (1027) — Pm Prometium	62 150.35 1900 1072 7.54 Sm Samarium	63 151.96 1439 826 5.26 Eu Europium	64 157.25 3000 1312 7.89 Gd Gadolinium	65 158.924 2800 1356 8.27 Tb Terbium	66 162.50 2600 1407 8.54 Dy Disprosium	67 164.930 2600 1461 8.80 Ho Holmium	68 167.26 2900 1497 9.05 Er Erbium	69 168.934 1727 1545 9.33 Tm Tulium	70 173.04 1427 824 6.98 Yb Iterbium	71 174.97 3327 1652 9.84 Lu Lutetium
★★ 7	90 232.038 3850 1750 11.7 Th Torium	91 (231) — (1230) 15.4 Pa Protaktinium	92 238.03 3818 1132 19.07 U Uranium	93 (237) — 637 19.5 Np Naptunium	94 (242) — 3235 640 — Pu Plutonium	95 — — 11.7 Am Amerisium	96 (247) — — — Cm Kurium	97 (247) — — — Bk Berkelium	98 (249) — — — Cf Kalifornium	99 (254) — — — Es Einsteinium	100 (253) — — — Fm Fermium	101 (256) — — — Md Mendelevium	102 (254) — — — No Nobelium	103 (257) — — — Lw Lutesium



CATITAN:

(1) Hitam — pepejal.
Merah — gas.
Biru — cecair.
Garisleser — disediakan secara sintetik.

(2) Berdasarkan kepada Karbon — 12. ( ) menunjukkan isotop yang paling stabil atau lebih terkenal.

(3) Nilai-nilai unsur-unsur gas dalam bentuk cecair pada takat didih.

Lampiran 1
Appendix 1

[EEU 202]

FAIRCHILD
SEMICONDUCTOR®

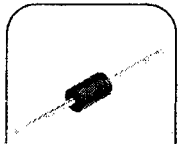
Zeners
1N4728A - 1N4764A

Absolute Maximum Ratings * T_A = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
P_D	Power Dissipation @ TL ≤ 50°C, Lead Length = 3/8"	1.0	W
	Derate above 50°C	6.67	mW/°C
T_J, T_{STG}	Operating and Storage Temperature Range	-65 to +200	°C

* These ratings are limiting values above which the serviceability of the diode may be impaired.

Tolerance = 5%



DO-41 Glass case
COLOR BAND DENOTES CATHODE

Electrical Characteristics T_A=25°C unless otherwise noted

Device	V_Z (V) @ I_Z (Note 1)	Test Current I_Z (mA)	Max. Zener Impedance			Leakage Current	
			Z_Z @ I_Z (Ω)	Z_{ZK} @ I_{ZK} (Ω)	I_{ZK} (mA)	I_R (mA)	V_R (V)
1N4728A	3.3	76	10	400	1	100	1
1N4729A	3.6	69	10	400	1	100	1
1N4730A	3.9	64	9	400	1	50	1
1N4731A	4.3	58	9	400	1	10	1
1N4732A	4.7	53	8	500	1	10	1
1N4733A	5.1	49	7	550	1	10	1
1N4734A	5.6	45	5	600	1	10	2
1N4735A	6.2	41	2	700	1	10	3
1N4736AT	6.8	37	3.5	700	1	10	4
1N4737AT	7.5	34	4	700	0.5	10	5
1N4738AT	8.2	31	4.5	700	0.5	10	6
1N4739AT	9.1	28	5	700	0.5	10	7
1N4740AT	10	25	7	700	0.25	10	7.6
1N4741AT	11	23	8	700	0.25	5	8.4
1N4742AT	12	21	9	700	0.25	5	9.1
1N4743AT	13	19	10	700	0.25	5	9.9
1N4744AT	15	17	14	700	0.25	5	11.4
1N4745AT	16	15.5	16	700	0.25	5	12.2
1N4746AT	18	14	20	750	0.25	5	13.7
1N4747AT	20	12.5	22	750	0.25	5	15.2
1N4748A	22	11.5	23	750	0.25	5	16.7
1N4749A	24	10.5	25	750	0.25	5	18.2
1N4750A	27	9.5	35	750	0.25	5	20.6
1N4751A	30	8.5	40	1000	0.25	5	22.8
1N4752A	33	7.5	45	1000	0.25	5	25.1
1N4753A	36	7	50	1000	0.25	5	27.4
1N4754A	39	6.5	60	1000	0.25	5	29.7
1N4755A	43	6	70	1500	0.25	5	32.7
1N4756A	47	5.5	80	1500	0.25	5	35.8
1N4757A	51	5	95	1500	0.25	5	38.8

Electrical Characteristics (Continued) T_A=25°C unless otherwise noted

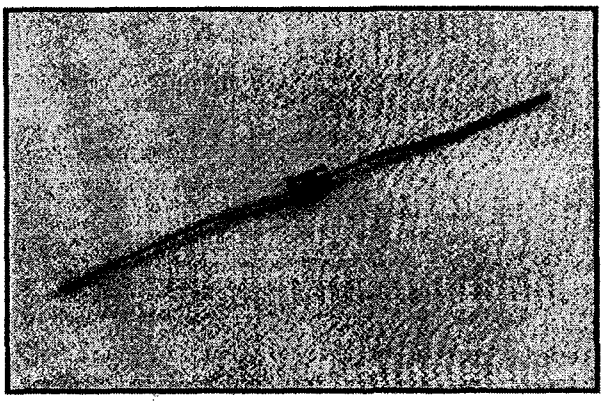
Device	V_Z (V) @ I_Z (Note 1)	Test Current I_Z (mA)	Max. Zener Impedance			Leakage Current	
			Z_Z @ I_Z (Ω)	Z_{ZK} @ I_{ZK} (Ω)	I_{ZK} (mA)	I_R (mA)	V_R (V)
1N4758A	56	4.5	110	2000	0.25	5	42.6
1N4759A	62	4	125	2000	0.25	5	47.1
1N4760A	68	3.7	150	2000	0.25	5	51.7
1N4761A	75	3.3	175	2000	0.25	5	56
1N4762A	82	3	200	3000	0.25	5	62.2
1N4763A	91	2.8	250	3000	0.25	5	69.2
1N4764A	100	2.5	350	3000	0.25	5	76

V_F Forward Voltage = 1.2V Max @ I_F = 200mA

Notes:
1. Zener Voltage (V_Z)
The zener voltage is measured with the device junction in the thermal equilibrium at the lead temperature (T_L) at 30°C ± 1°C and 3/8" lead length.

1N4001 Thru 1N4007

1 AMP PLASTIC SILICON RECTIFIER

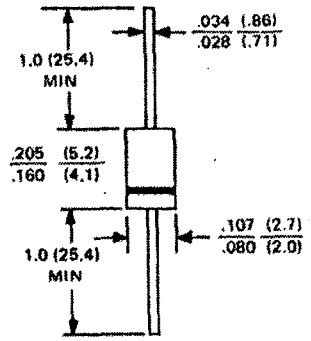


FEATURES

- Rating to 1000V PRV
- Low cost
- Diffused junction
- Low leakage
- Low forward voltage drop
- High current capability
- Easily cleaned with freon, alcohol, chlorothene and similar solvents
- UL recognized 94V-O plastic material

Outline Drawing

DO-41



Dimensions in Inches and (millimeters)

Mechanical Data

- Case: JEDEC DO-41
- Terminals: Axial leads, solderable per MIL-STD-202, Method 208
- Polarity: Color band denotes cathode
- Weight: 0.012 ounce, 0.3 grams
- Mounting Position: Any

Maximum Ratings & Characteristics

- Ratings at 25° C ambient temperature unless otherwise specified
- Single phase, half wave, 60Hz, resistive or inductive load
- For capacitive load, derate current by 20%

		1N4001	1N4002	1N4003	1N4004	1N4005	1N4006	1N4007	Units
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	V
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	V
Maximum Average Forward Rectified Current .375 (9.5mm) Lead Lengths @ T_A = 75° C	$I_{(AV)}$	1.0							A
Peak Forward Surge Current 8.3 ms Single Half-Sine-Wave Superimposed On Rated Load	I_{FSM}	40							A
Maximum Forward Voltage At 1.0A DC	V_F	1.0							V
Maximum DC Reverse Current @ T_A = 25°C At Rated DC Blocking Voltage @ T_A = 100°C	I_R	5 50							μA
Typical Junction Capacitance (Note 1) T_A = 25° C	C_J	15							pF
Typical Thermal Resistance (Note 2)	R_{thJA}	26							°C/W
Operating Temperature Range	T_J	-65 to +175							°C
Storage Temperature Range	T_{STG}	-65 to +175							°C

Notes: 1. Measured at 1.0 MHz and applied reverse voltage of 4.0V DC