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<a href="http://rivaldoap191007.blogspot.com/"><span style="color: blue;">[KEMBALI KE
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serif;"><span style="font-family: &quot;georgia&quot;; &quot;times new roman&quot;; , serif;
font-size: large;">Crystal Oscillator</span></span></span></h2>
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<b>DAFTAR ISI</b><br />
<b><br /></b>
<div style="text-align: left;">
<span style="color: blue; font-family: Georgia, Times New Roman, serif;"></a><a
href="#tu">1. Tujuan</a></span></div>
<div style="text-align: left;">
<span style="color: blue; font-family: Georgia, Times New Roman, serif;"></a><a
href="#ko">2. Komponen</a></span></div>
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<span style="color: blue; font-family: Georgia, Times New Roman, serif;"></a><a
href="#pr">4. Prinsip Kerja Rangkaian</a></span><br />
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href="#ga">5. Gambar Rangkaian</a></span></div>
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href="#vi">6. Video</a></span></div>
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<span style="color: blue; font-family: Georgia, Times New Roman, serif;"></a><a
href="#do">7. Download File</a></span></div>
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serif;">
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1.

Tujuan <span style="color:

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style="font-family: "georgia" , "times new roman" ,

serif;">[kembali]</div>

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<div style="text-align: left;">

 a. Mengetahui apa itu

Crystal Oscillator</div>

<div style="text-align: left;">

 b. Mampu membuat rangkaian Crystal Oscillator</div>

<div style="text-align: left;">

 c. Mengetahui fungsi Crystal Oscillator</div>

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2. Komponen <span style="font-family: "georgia" , "times new

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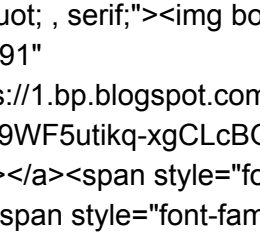
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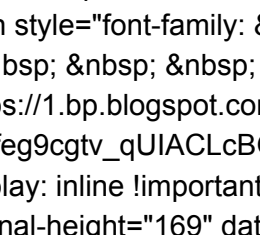
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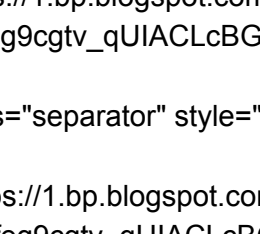
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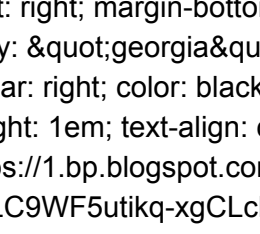
[\[kembali\]](#)

a. Crystal









gambar 1. Crystal di proteus

gambar 2. Contoh crystal

<div>

 Kristal adalah suatu komponen elektronika yang berfungsi sebagai resonator. Kristal sering digunakan sebagai pembangkit />frekuensi tinggi karna lebih stabil dibandingkan dengan induktor serta penggunaannya yang lebih mudah. />Kristal digunakan pada rangkaian elektronika yang berhubungan dengan pembangkitan frekuensi baik itu frekuensi tinggi, frekuensi suara, maupun frekuensi rendah. </div>
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 /> b.Resistor /></div>
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Resistor </div>
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RptRoq7X0d4bJdD004i3oYaKrr_t5gLvO3_np6RTsD45RU6244UlfMJuygiq=s0-d"),
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mengatur <span style="cursor:
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RptRoq7X0d4bJdD004i3oYaKrr_t5gLvO3_np6RTsD45RU6244UlfMJuygiq=s0-d"),
auto;">arus listrik. Resistor mempunyai nilai resistansi (tahanan) tertentu yang dapat
memproduksi <span style="cursor:

[illegible]

uot;),
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RptRoq7X0d4bJdD004i3oYaKrr_t5gLvO3_np6RTsD45RU6244UlfMJuygiq=s0-d"),
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dibuat dari bermacam-macam komponen dan film, bahkan kawat resistansi (kawat yang
dibuat dari paduan resistivitas tinggi seperti <span style="cursor:
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<span style="font-family: "georgia"; "times new roman";
serif;"> c. Capacitor</div>
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[illegible]

uot;),
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auto !important;"> Ground adalah titik yang dianggap sebagai titik
kembali nya arus listrik arus searah atau titik kembali nya sinyal bolak balik atau titik patokan
(referensi) dari berbagai titik tegangan dan sinyal listrik di dalam rangkaian
elektronika.<br style="cursor:
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auto !important;">Arti ground = bumi, sedangkan grounding = pembumian, dalam arti
sebenarnya adalah titik di bumi di mana secara listrik berhubungan /bertemu dengan mata
air tanah (mata air tanah).</div>
</div>
<div>

</div>
<div>
<span style="font-family: "georgia" , "times new roman" ,
serif;"> f. NPN Transistor</div>

<div>
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uot;),
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auto !important;"> <span style="font-family: "georgia"; "times new
roman"; serif;"> gambar 9. NPN di proteus
 gambar 10. Contoh
NPN</div>
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auto !important; text-align: center;">Transistor NPN terdiri dari selapis semikonduktor tipe-p diantara dua lapis tipe-n. Arus kecil yang memasuki basis pada tunggal emittor dikuatkan di

keluaran kolektor. Tanda panah dari simbol diletakkan di kaki emittor dan menuju keluar.

T

ransistor sebagai saklar penyambung, pemutus dan penguat sinyal.

[</div>](https://1.bp.blogspot.com/-57Q6ASsSp5U/Xj-xKwHqWRI/AAAAAAAAAAQU/tRJUOXHIStlXA7sg7zEZDbCE3iFaOllxgCLcBGAsYHQ/s1600/WhatsApp%2BImage%2B2020-02-09%2Bat%2B14.06.06.jpeg)

<div class="MsoNormal" style="text-align: left;">

</div>

<div class="separator" style="clear: both; text-align: center;">
gambar18.31 Rangkain listrik yang setara dengan kristal</div>

<div class="separator" style="clear: both; text-align: center;">

</div>

<div class="MsoNormal" style="text-align: left;">
 Karakteristik Kristal Kuarsa Kristal kuarsa (salah satu dari banyak jenis kristal) menunjukkan sifat bahwa ketika tekanan mekanis diterapkan pada permukaan kristal, perbedaan potensi terjadi pada permukaan kristal yang berseberangan. Sifat kristal ini disebut efek piezoelektrik. Demikian pula, tegangan yang diterapkan pada satu set wajah kristal menyebabkan distorsi mekanis pada bentuk kristal. Ketika tegangan bolak-balik diterapkan pada kristal, getaran mekanis diatur getaran ini memiliki frekuensi resonansi alami tergantung pada kristal. Meskipun kristal memiliki resonansi elektromekanis, kita dapat mewakili aksi kristal dengan sirkuit resonansi listrik yang sama seperti yang ditunjukkan pada Gambar. 18.31. Induktor L dan kapasitor C mewakili padanan listrik dari massa dan kepatuhan kristal, sedangkan resistansi R adalah padanan listrik dari friksi internal struktur kristal. CM kapasitansi shunt mewakili kapasitansi karena pemasangan kristal secara mekanis. Karena kehilangan kristal, yang diwakili oleh R, kecil, kristal Q yang berkualitas (faktor kualitas) tinggi, biasanya 20.000. Nilai Q hingga hampir 10 dapat dicapai dengan menggunakan kristal. </div>

<div class="MsoNormal" style="text-align: left;">
 Kristal yang diwakili oleh rangkaian listrik ekuivalen Gambar 18.31 dapat memiliki dua frekuensi resonansi. Satu kondisi resonansi terjadi ketika reaktansi kaki seri RLC sama (dan berlawanan). Untuk kondisi ini, impedansi seri-resonan sangat rendah (sama dengan R). Kondisi resonansi lainnya terjadi pada frekuensi yang lebih tinggi ketika reaktansi seri-resonansi kaki sama dengan reaktansi kapasitor Cu. Ini adalah resonansi paralel atau kondisi antiresonansi kristal. Pada frekuensi ini, kristal menawarkan impedansi yang

dikembangkan melintasi kristal pada frekuensi paralel-resonannya.

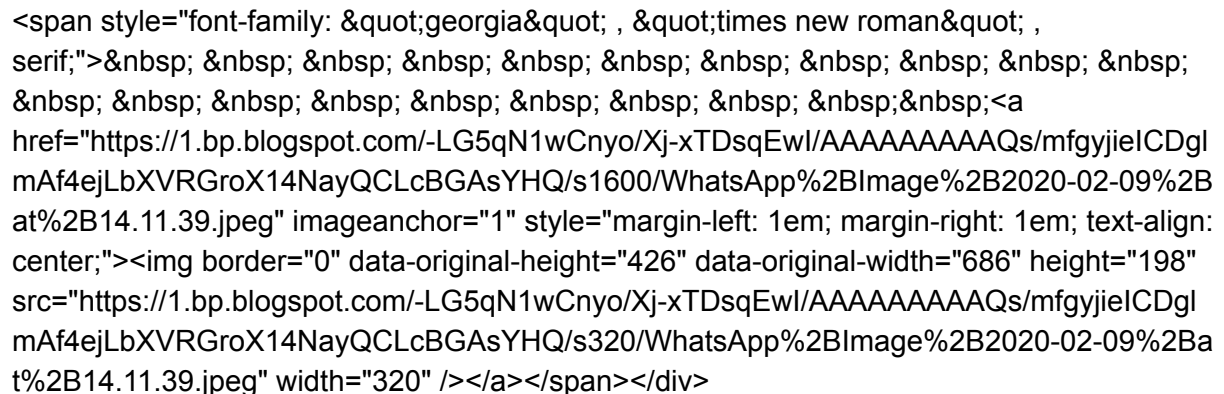
Tegangan digabungkan ke emitor oleh pembagi tegangan kapasitor-kapasitor C dan Cz.

Sirkuit osilator yang dikendalikan kristal Miller ditunjukkan pada Gambar. 18.35.

Sirkuit LC yang disetel pada bagian saluran disesuaikan di dekat frekuensi resonansi paralel kristal.

Sinyal sumber gerbang maksimum terjadi pada frekuensi kristal antiresonan

keluaran menghasilkan seperti yang ditunjukkan pada gambar. Sepasang dioda Zener ditunjukkan pada output untuk memberikan amplitudo keluaran tepat pada tegangan Zener (Vz).



Gambar 18.36 Crystal osilator menggunakan op-amp.

 Kristal sering digunakan sebagai pembangkit frekuensi tinggi. Arus<span style="cursor: url("https://lh3.googleusercontent.com/proxy/JoJL934uMu5R6QtsXmB5A2YA0gUdZeB5cDqc1BfzGVNmGIGCh4leUN4iE5ZOjFz7saJLQRfzMta4JFWJhk9zF-AnS_aARbsx=s0-d"); , url("https://lh5.googleusercontent.com/proxy/8EIJJujO8qqlh_xt4_jt4EK4jUFgAy2NhhfZRptRoq7X0d4bJdD004i3oYaKrr_t5gLvO3_np6RTsD45RU6244UlfMJuygiq=s0-d"); ,

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uot;) ,
url("https://lh5.googleusercontent.com/proxy/8ElJJujO8qqLh_xt4_jt4EK4jUFgAy2NhhfZ
RptRoq7X0d4bJdD004i3oYaKrr_t5gLvO3_np6RTsD45RU6244UlfMJuygiq=s0-d") ,
auto;"> dialirkan ke resistor, kapasitor, dan ke transistor NPN. Arus yang mengalir antara
kaki basis dan emitor akan berfungsi sebagai saklar untuk mengalirkan arus yang lebih
besar dari kaki kolektor ke emitor. <span
style="background-color: white; text-align: center;">Arus kecil yang memasuki basis pada
tunggal emittor dikuatkan di keluaran kolektor

<span style="font-family: "georgia" , "times new roman" ,
serif;"><span style="font-family: "georgia" , "times new roman" ,
serif;">

<div style="text-align: left;">
<span style="font-family: "georgia" , "times new roman" ,
serif;">5. Gambar Rangkaian
 <span style="color:
blue;"> <span style="color: blue; font-family: "georgia" ,
"times new roman" , serif;">[kembali]</div>
<div style="text-align: left;">
<span style="font-family: "georgia" , "times new roman" ,
serif;"><span style="font-family: "georgia" , "times new roman" ,
serif;">

<span style="font-family: "georgia" , "times new roman" ,
serif;"><span style="font-family: "georgia" , "times new roman" ,
serif;">

<div class="separator" style="clear: both; text-align: center;">
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margin-left: 1em; margin-right: 1em;"><a
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style="margin-left: 1em; margin-right: 1em;"></div>

```

<div class="separator" style="clear: both; text-align: center;">
<span style="font-family: &quot;georgia&quot;; , &quot;times new roman&quot;; ,
serif;">gambar 18.33&nbsp;(a)</span></div>
<span style="font-family: &quot;georgia&quot;; , &quot;times new roman&quot;; ,
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serif;"><br /></span>
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6. Video [kembali]</div>

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Video
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Download File <span style="color: black; font-family:
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serif;"> <span style="font-family:
"georgia" , "times new roman" , serif;"><span style="color:
blue;">[kembali]</div>
<div style="text-align: left;">

</div>

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