

|  |                             |   |            |          |
|--|-----------------------------|---|------------|----------|
| <b>Collector-Emitter Voltage</b>         | <b><math>V_{CE}</math></b>  | <b><math>V_{CE}=0, I_C=1mA, T_j=25</math></b> | <b>120</b> | <b>V</b> |
| <b>Continuous Collector Current</b>      | <b><math>I_C</math></b>     | <b><math>T_C=10, T_{jmax}=175</math></b>      | <b>25</b>  | <b>A</b> |
| <b>Repetitive Peak Collector Current</b> | <b><math>I_{CM}</math></b>  | <b><math>t_p=1ms</math></b>                   | <b>50</b>  | <b>A</b> |
| <b>Gate-Emitter Voltage</b>              | <b><math>V_{GE}</math></b>  | <b><math>T_j=25</math></b>                    | <b>20</b>  | <b>V</b> |
| <b>Total Power Dissipation</b>           | <b><math>P_{tot}</math></b> | <b><math>T_C=25, T_{jmax}=175</math></b>      | <b>166</b> | <b>W</b> |



|  |               |  |           |            |            |                           |
|--|---------------|--|-----------|------------|------------|---------------------------|
|  |               |  |           |            |            |                           |
| <b>Gate-emitter Threshold Voltage</b>          | $V_{GE(th)}$  | $V_{GE}=V_{CE}, I_C=12mA, T_j=25$                                      | <b>52</b> | <b>60</b>  | <b>68</b>  | <b>V</b>                  |
| <b>Collector-Emitter Cut-off Current</b>       | $I_{CS}$      | $V_{CE}=120V, V_{GE}=0V, T_j=25$                                       |           |            | <b>10</b>  | <b>nA</b>                 |
| <b>Collector-Emitter Saturation Voltage</b>    | $V_{CE(sat)}$ | $I_C=25A, V_{GE}=15V, T_j=25$  |           | <b>185</b> | <b>225</b> | <b>V</b>                  |
|  |               | $I_C=25A, V_{GE}=15V, T_j=125$   |           | <b>215</b> |            |                           |
|  |               | $I_C=25A, V_{GE}=15V, T_j=150$   |           | <b>225</b> |            |                           |
| <b>Gate Charge</b>                             | $Q_g$         |  |           | <b>020</b> |            | <b><math>\mu C</math></b> |
| <b>Input Capacitance</b>                       | $C_{is}$      | $V_{CE}=25V, V_{GE}=0V$  |           | <b>145</b> |            | <b>pF</b>                 |
| <b>Reverse Transfer Capacitance</b>            | $C_{es}$      | $f=1MHz, T_j=25$   |           | <b>005</b> |            | <b>pF</b>                 |
| <b>Gate-Emitter leakage current</b>            | $I_{GS}$      | $V_{CE}=0V, V_{GE}=20V, T_j=25$  |           |            | <b>40</b>  | <b>nA</b>                 |
| <b>Turn-on Delay/line</b>                      | $t_{on}$      | $I_C=25A$<br>$V_{CE}=60V$<br>$V_{GE}=\pm 15V$<br>$R_G=18$<br>$T_j=25$  |           | <b>158</b> |            | <b>ns</b>                 |
| <b>Rise time</b>                               | $t_r$         |  |           | <b>32</b>  |            | <b>ns</b>                 |
| <b>Turn-off Delay/line</b>                     | $t_{off}$     |  |           | <b>331</b> |            | <b>ns</b>                 |
| <b>Fall time</b>                               | $t_f$         |  |           | <b>8</b>   |            | <b>ns</b>                 |
| <b>Energy Dissipation During Turn-on/line</b>  | $E_{on}$      |  |           | <b>180</b> |            | <b>nJ</b>                 |
| <b>Energy Dissipation During Turn-off/line</b> | $E_{off}$     |  |           | <b>140</b> |            | <b>nJ</b>                 |
| <b>Turn-on Delay/line</b>                      | $t_{on}$      | $I_C=25A$<br>$V_{CE}=60V$<br>$V_{GE}=\pm 15V$<br>$R_G=18$<br>$T_j=125$ |           | <b>172</b> |            | <b>ns</b>                 |
| <b>Rise time</b>                               | $t_r$         |  |           | <b>45</b>  |            | <b>ns</b>                 |
| <b>Turn-off Delay/line</b>                     | $t_{off}$     |  |           | <b>154</b> |            | <b>ns</b>                 |
| <b>Fall time</b>                               | $t_f$         |  |           | <b>212</b> |            | <b>ns</b>                 |
| <b>Energy Dissipation During Turn-on/line</b>  | $E_{on}$      |  |           | <b>24</b>  |            | <b>nJ</b>                 |
| <b>Energy Dissipation During Turn-off/line</b> | $E_{off}$     |  |           | <b>218</b> |            | <b>nJ</b>                 |
| <b>SCData</b>                                  | $I_C$         | $T_p=10s, V_{CE}=15V, T_j=150, V_{CE}=90V, V_{CEM}=120V$               |           | <b>120</b> |            | <b>A</b>                  |



|  |                             |  |            |                           |
|--|-----------------------------|--|------------|---------------------------|
|  |                             |  |            |                           |
| <b>Repetitive Peak Reverse Voltage</b> | <b><math>V_{RRM}</math></b> | <b><math>T_j=25</math></b>                   | <b>120</b> | <b>V</b>                  |
| <b>Continuous DC Forward Current</b>   | <b><math>I_F</math></b>     |  | <b>25</b>  | <b>A</b>                  |
| <b>Repetitive Peak Forward Current</b> | <b><math>I_{FRM}</math></b> | <b><math>t_f=1ms</math></b>                  | <b>50</b>  | <b>A</b>                  |
| <b>R<sub>th(j-c)</sub></b>             | <b><math>R_{th}</math></b>  | <b><math>V_f=0, t_f=10ms, T_j=125</math></b> | <b>900</b> | <b><math>\mu s</math></b> |
|  |                             | <b><math>V_f=0, t_f=10ms, T_j=150</math></b> | <b>750</b> |                           |

|                                      |                            |   |  |            |                           |
|--------------------------------------|----------------------------|---|--|------------|---------------------------|
|                                      |                            |   |  |            |                           |
| <b>Forward Voltage</b>               | <b><math>V_f</math></b>    | <b><math>I_f=25A, T_j=25</math></b>                                 |  | <b>210</b> | <b>250</b>                |
|                                      |                            | <b><math>I_f=25A, T_j=125</math></b>                                |  | <b>220</b> |                           |
|                                      |                            | <b><math>I_f=25A, T_j=150</math></b>                                |  | <b>220</b> |                           |
| <b>Recovered Charge</b>              | <b><math>Q_r</math></b>    | <b><math>I_f=25A</math></b>   |  | <b>252</b> | <b><math>\mu C</math></b> |
| <b>Peak Reverse Recovery Current</b> | <b><math>I_{rr}</math></b> | <b><math>V_r=60V</math><br/><b><math>-d_f/d=680\mu s</math></b></b> |  | <b>285</b> | <b>A</b>                  |
| <b>Reverse Recovery Energy</b>       | <b><math>E_{rr}</math></b> | <b><math>T_j=25</math></b>  |  | <b>091</b> | <b>mJ</b>                 |
| <b>Recovered Charge</b>              | <b><math>Q_r</math></b>    | <b><math>I_f=25A</math></b>   |  | <b>508</b> | <b><math>\mu C</math></b> |
| <b>Peak Reverse Recovery Current</b> | <b><math>I_{rr}</math></b> | <b><math>V_r=60V</math><br/><b><math>-d_f/d=680\mu s</math></b></b> |  | <b>305</b> | <b>A</b>                  |
| <b>Reverse Recovery Energy</b>       | <b><math>E_{rr}</math></b> | <b><math>T_j=125</math></b>   |  | <b>175</b> | <b>mJ</b>                 |



|  |                             |  |            |          |
|--|-----------------------------|--|------------|----------|
|  |                             |  |            |          |
| <b>Collector-Emitter Voltage</b>         | <b><math>V_{CES}</math></b> | <b><math>V_{CE}=0V, I_C=1mA, T_j=25</math></b> | <b>120</b> | <b>V</b> |
| <b>Continuous Collector Current</b>      | <b><math>I_C</math></b>     | <b><math>T_C=100, T_{jmax}=175</math></b>      | <b>15</b>  | <b>A</b> |
| <b>Repetitive Peak Collector Current</b> | <b><math>I_{CRM}</math></b> | <b><math>t_p=1ms</math></b>                    | <b>30</b>  | <b>A</b> |
| <b>Gate-Emitter Voltage</b>              | <b><math>V_{GES}</math></b> | <b><math>T_j=25</math></b>                     | <b>20</b>  | <b>V</b> |
| <b>Total Power Dissipation</b>           | <b><math>P_{ft}</math></b>  | <b><math>T_C=25, T_{jmax}=175</math></b>       | <b>155</b> | <b>W</b> |

|  |                                 |  |           |            |            |                           |
|--|---------------------------------|--|-----------|------------|------------|---------------------------|
|  |                                 |  |           |            |            |                           |
| <b>Gate-emitter Threshold Voltage</b>          | <b><math>V_{GE(th)}</math></b>  | <b><math>V_{GE}=V_{CE}, I_C=0.5mA, T_j=25</math></b>   | <b>52</b> | <b>60</b>  | <b>68</b>  | <b>V</b>                  |
| <b>Collector-Emitter Cut-off Current</b>       | <b><math>I_{CES}</math></b>     | <b><math>V_{CE}=120V, V_{GE}=0V, T_j=25</math></b>   |           |            | <b>10</b>  | <b>nA</b>                 |
| <b>Collector-Emitter Saturation Voltage</b>    | <b><math>V_{CE(sat)}</math></b> | <b><math>I_C=15A, V_{CE}=15V, T_j=25</math></b>  |           | <b>185</b> | <b>225</b> | <b>V</b>                  |
|  |                                 | <b><math>I_C=15A, V_{CE}=15V, T_j=125</math></b>   |           | <b>215</b> |            |                           |
|  |                                 | <b><math>I_C=15A, V_{CE}=15V, T_j=175</math></b>   |           | <b>225</b> |            |                           |
| <b>Gate Charge</b>                             | <b><math>Q_g</math></b>         |  |           | <b>009</b> |            | <b><math>\mu C</math></b> |
| <b>Input Capacitance</b>                       | <b><math>C_{is}</math></b>      | <b><math>V_{CE}=25V, V_{GE}=0V,</math><br/><b><math>f=1MHz, T_j=25</math></b></b>  |           | <b>135</b> |            | <b>nF</b>                 |
| <b>Reverse Transfer Capacitance</b>            | <b><math>C_{rs}</math></b>      |  |           | <b>008</b> |            | <b>nF</b>                 |
| <b>Gate-Emitter Delay Current</b>              | <b><math>I_{GES}</math></b>     | <b><math>V_{CE}=0V, V_{GE}=20V, T_j=25</math></b>  |           |            | <b>400</b> | <b>nA</b>                 |
| <b>Turn-on Delay/line</b>                      | <b><math>t_{on}</math></b>      | <b><math>I_C=15A</math><br/><b><math>V_{CE}=60V</math><br/><b><math>V_{GE}=\pm 15V</math><br/><b><math>R_G=3\Omega</math><br/><b><math>T_j=25</math></b></b></b></b></b> |           | <b>46</b>  |            | <b>ns</b>                 |
| <b>Rise Time</b>                               | <b><math>t_r</math></b>         |  |           | <b>45</b>  |            | <b>ns</b>                 |
| <b>Turn-off Delay/line</b>                     | <b><math>t_{off}</math></b>     |  |           | <b>182</b> |            | <b>ns</b>                 |
| <b>Fall Time</b>                               | <b><math>t_f</math></b>         |  |           | <b>168</b> |            | <b>ns</b>                 |
| <b>Energy Dissipation During Turn-on/line</b>  | <b><math>E_{on}</math></b>      |  |           | <b>092</b> |            | <b>nJ</b>                 |
| <b>Energy Dissipation During Turn-off/line</b> | <b><math>E_{off}</math></b>     |  |           | <b>056</b> |            | <b>nJ</b>                 |



|   |           |   |   |           |           |
|---|-----------|---|---|-----------|-----------|
| <b>TurnonDelay/line</b>                       | $t_{on}$  | $I_c=15A$<br>$V_{CE}=60V$<br>$V_{CE}=\pm 15V$<br>$R_f=3\Omega$<br>$T_j=125$ | <b>46</b>   |           | <b>ns</b> |
| <b>RiseTime</b>                               | $t_r$     |   | <b>68</b>   |           | <b>ns</b> |
| <b>TurnoffDelay/line</b>                      | $t_{off}$ |   | <b>28</b>   |           | <b>ns</b> |
| <b>FallTime</b>                               | $t_f$     |   | <b>20</b>   |           | <b>ns</b> |
| <b>Energy Dissipation During Turnon/line</b>  | $E_{on}$  |   | <b>137</b>  |           | <b>nJ</b> |
| <b>Energy Dissipation During Turnoff/line</b> | $E_{off}$ |   | <b>081</b>  |           | <b>nJ</b> |
| <b>SCData</b>                                 | $I_c$     |   | $T_p=10ns, V_{CE}=15V, T_j=150$ ,<br>$V_{CE}=90V, V_{CEM}=120V$ | <b>55</b> |           |

|                                     |            |                               |            |  |           |
|-------------------------------------|------------|-------------------------------|------------|--|-----------|
|                                     |            |                               |            |  |           |
| <b>RepetitivePeakReverseVoltage</b> | $V_{RRM}$  | $T_j=25$                      | <b>120</b> |  | <b>V</b>  |
| <b>ContinuousDCForwardCurrent</b>   | $I_F$      |                               | <b>15</b>  |  | <b>A</b>  |
| <b>RepetitivePeakForwardCurrent</b> | $I_{FRM}$  | $t_p=1ns$                     | <b>30</b>  |  | <b>A</b>  |
| <b>Rvalue</b>                       | $R_\theta$ | $V_{CE}=0, t_p=10ns, T_j=125$ | <b>400</b> |  | <b>As</b> |
|                                     |            | $V_{CE}=0, t_p=10ns, T_j=150$ | <b>310</b> |  |           |

|                                   |           |                                      |            |            |           |
|-----------------------------------|-----------|--------------------------------------|------------|------------|-----------|
|                                   |           |                                      |            |            |           |
| <b>ForwardVoltage</b>             | $V_F$     | $I_F=15A, T_j=25$                    | <b>200</b> | <b>265</b> | <b>V</b>  |
|                                   |           | $I_F=15A, T_j=125$                   | <b>210</b> |            |           |
|                                   |           | $I_F=15A, T_j=150$                   | <b>210</b> |            |           |
| <b>RecoveredCharge</b>            | $Q_r$     | $I_F=15A$                            | <b>120</b> |            | <b>uC</b> |
| <b>PeakReverseRecoveryCurrent</b> | $I_{rr}$  | $V_{CE}=60V$<br>$-d_i/d_t=60A/\mu s$ | <b>130</b> |            | <b>A</b>  |
| <b>ReverseRecoveryEnergy</b>      | $E_{rec}$ | $T_j=25$                             | <b>037</b> |            | <b>nJ</b> |
| <b>RecoveredCharge</b>            | $Q_r$     | $I_F=15A$                            | <b>205</b> |            | <b>uC</b> |
| <b>PeakReverseRecoveryCurrent</b> | $I_{rr}$  | $V_{CE}=60V$<br>$-d_i/d_t=60A/\mu s$ | <b>120</b> |            | <b>A</b>  |
| <b>ReverseRecoveryEnergy</b>      | $E_{rec}$ | $T_j=125$                            | <b>068</b> |            | <b>nJ</b> |

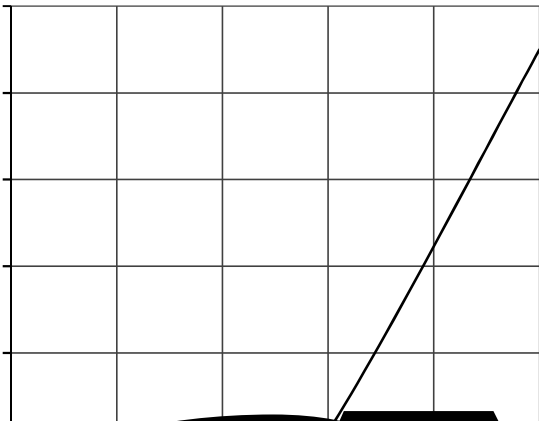
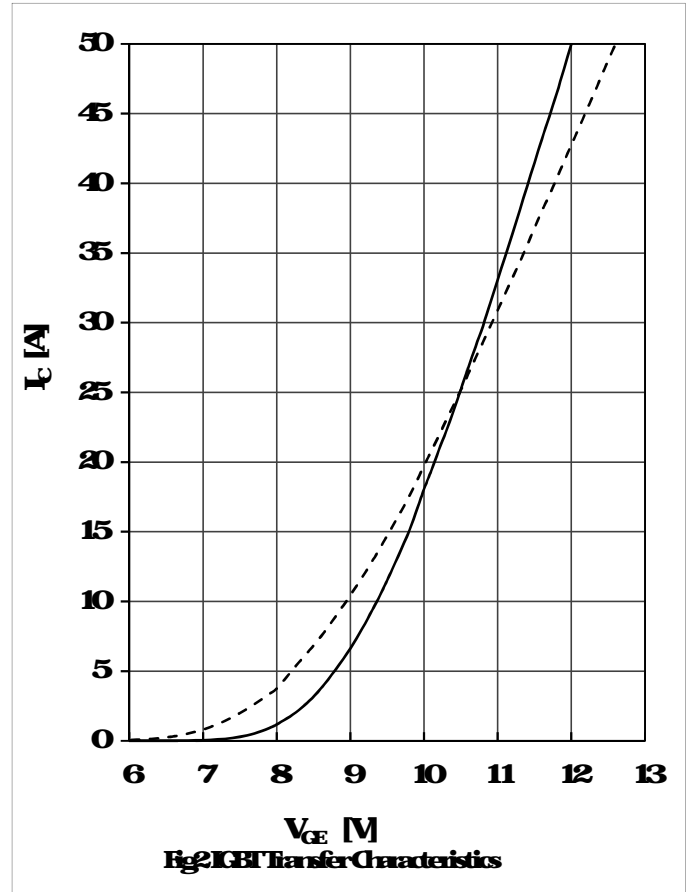
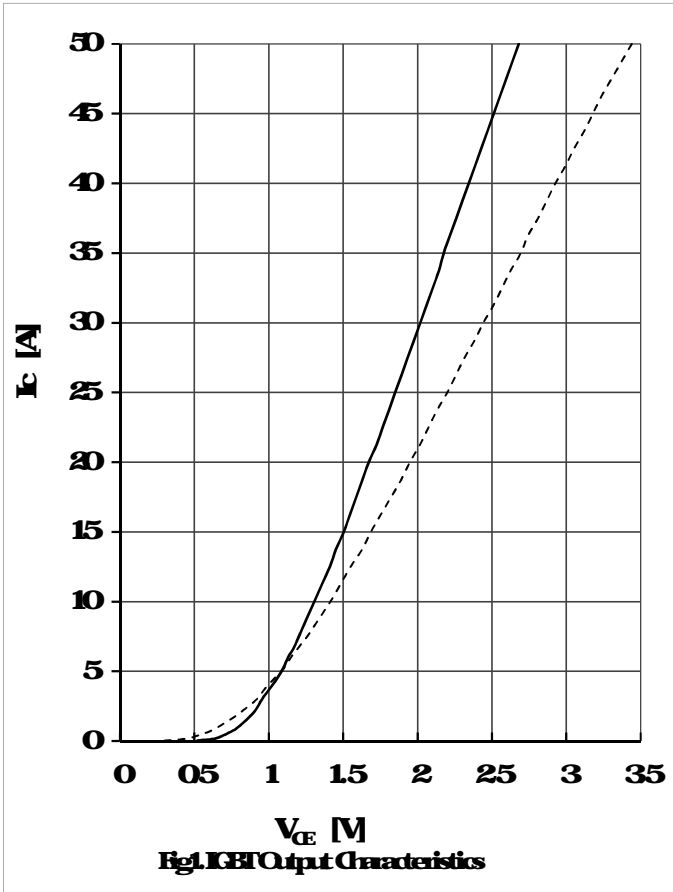


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|--|-----------------------------|---|------------|-----------|
|  |                             |   |            |           |
| <b>Repetitive Peak Reverse Voltage</b>             | <b><math>V_{RRM}</math></b> | <b><math>T_J=25</math></b>                  | <b>160</b> | <b>V</b>  |
| <b>Average Output Current<br/>50kHz, sine wave</b> | <b><math>I_{(A)}</math></b> | <b><math>T_C=100</math></b>                 | <b>35</b>  | <b>A</b>  |
| <b>Minimum RMS Current at<br/>Rectifier Output</b> | <b><math>I_{RMS}</math></b> | <b><math>T_C=100</math></b>                 | <b>60</b>  | <b>A</b>  |
| <b>Surge Forward Current</b>                       | <b><math>I_{SM}</math></b>  | <b><math>V_C=0, t_p=10ms, T_J=45</math></b> | <b>300</b> | <b>A</b>  |
| <b>ft value</b>                                    | <b><math>f_t</math></b>     | <b><math>V_C=0, t_p=10ms, T_J=45</math></b> | <b>510</b> | <b>ns</b> |

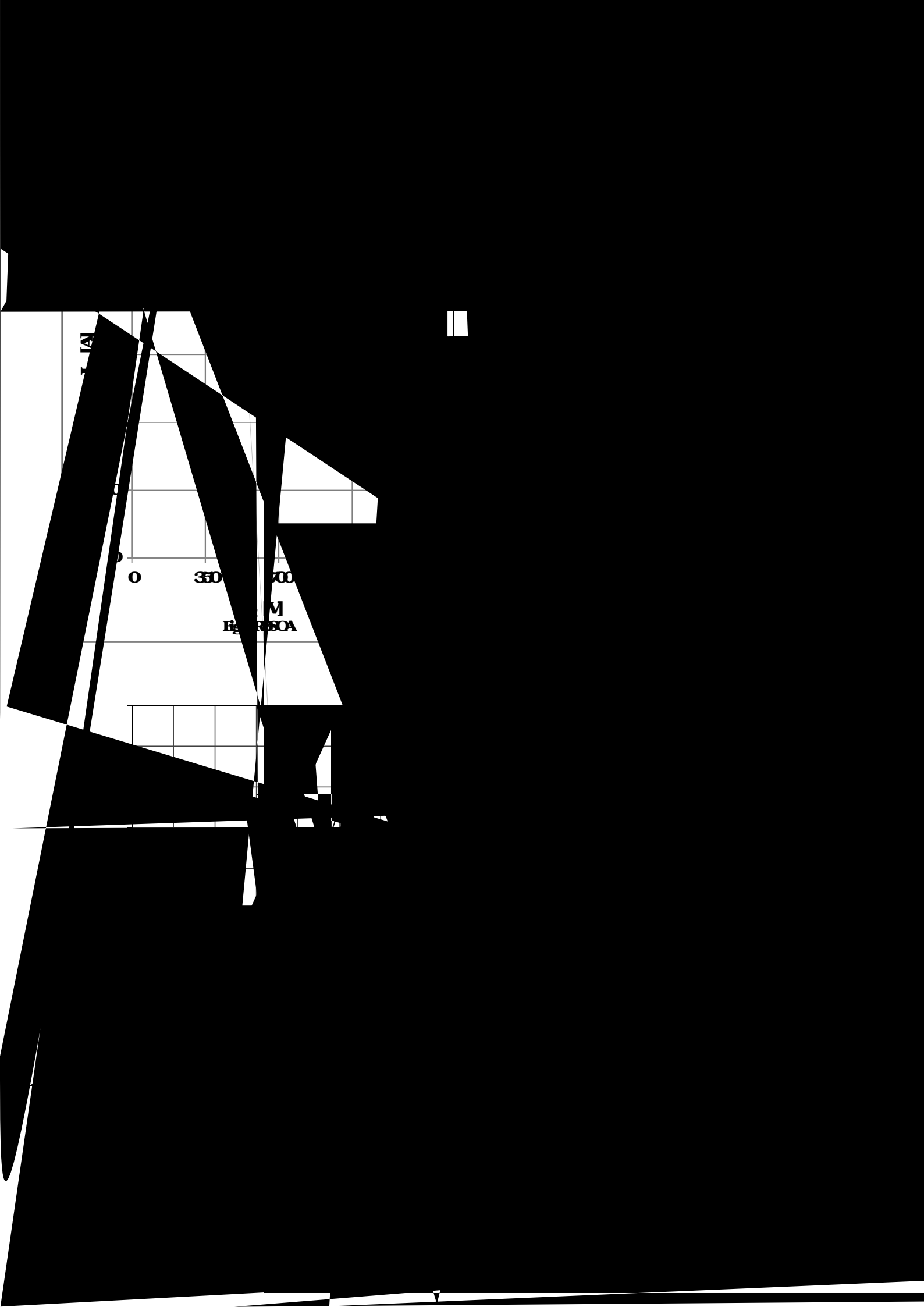
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|  |                         |  |            |            |            |           |
|--|-------------------------|--|------------|------------|------------|-----------|
|  |                         |  |            |            |            |           |
| <b>Isolation Voltage</b>                     | <b>V<sub>sd</sub></b>   | <b>t=1min@50Hz</b>                     | <b>250</b> |            |            | <b>V</b>  |
| <b>Minimum Junction Temperature</b>          | <b>T<sub>jmin</sub></b> |  |            |            | <b>175</b> |           |
| <b>Operating Junction Temperature</b>        | <b>T<sub>jq</sub></b>   |  | <b>-40</b> |            | <b>150</b> |           |
| <b>Storage Temperature</b>                   | <b>T<sub>stg</sub></b>  |  | <b>-40</b> |            | <b>125</b> |           |
| <b>Storage Inductance</b>                    | <b>L<sub>sc</sub></b>   |  |            | <b>60</b>  |            |           |
| <b>Module lead resistance, terminals dip</b> | <b>R<sub>CHFE</sub></b> | <b>T<sub>c</sub>=25 °C, per switch</b> |            | <b>40</b>  |            |           |
|  | <b>R<sub>MLCC</sub></b> |  |            | <b>30</b>  |            |           |
| <b>Thermal Resistance Junction to Case</b>   | <b>R<sub>JC</sub></b>   | <b>per GBF in meter</b>                |            |            | <b>090</b> | <b>KW</b> |
|  |                         | <b>per Dole in meter</b>               |            |            | <b>120</b> |           |
|  |                         | <b>per GBF bare copper</b>             |            |            | <b>120</b> |           |
|  |                         | <b>per Dole copper</b>                 |            |            | <b>150</b> |           |
|  |                         | <b>per Dole redifier</b>               |            |            | <b>115</b> |           |
| <b>Thermal Resistance Case to Sink</b>       | <b>R<sub>CS</sub></b>   | <b>per GBF in meter</b>                |            | <b>033</b> |            | <b>KW</b> |
|  |                         | <b>per Dole in meter</b>               |            | <b>046</b> |            |           |
|  |                         | <b>per GBF bare copper</b>             |            | <b>046</b> |            |           |
|  |                         | <b>per Dole copper</b>                 |            | <b>070</b> |            |           |
|  |                         | <b>per Dole redifier</b>               |            | <b>049</b> |            |           |
|  |                         | <b>per Middle</b>                      |            | <b>002</b> |            |           |
| <b>Mating Force Per Clamp</b>                | <b>F</b>                |  | <b>30</b>  |            | <b>60</b>  | <b>N</b>  |
| <b>Weight of Module</b>                      | <b>G</b>                |  |            | <b>180</b> |            | <b>g</b>  |







TIAI

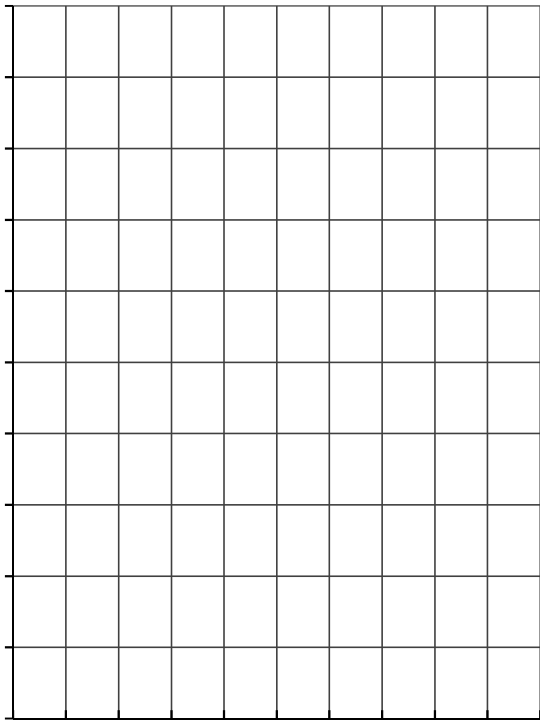
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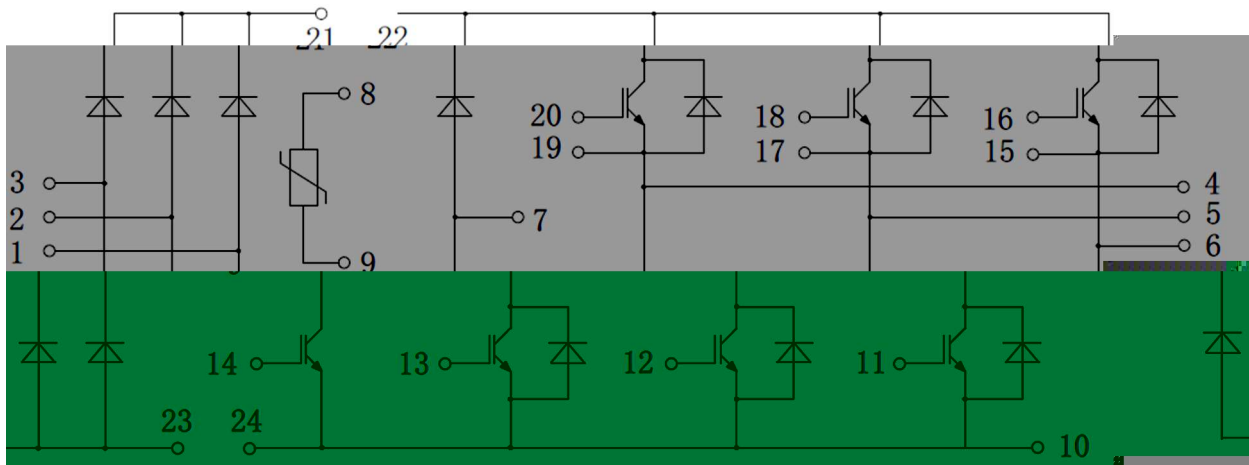
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350

700

M  
Eg. RSOA





Dimensions in Millimeters

