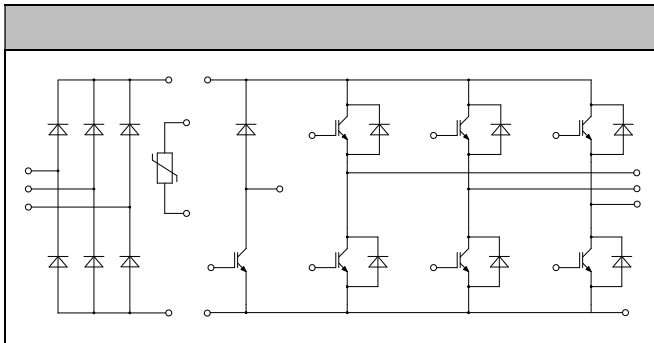




**120V  
100A**

**MicroDiodes  
AC and DC semiconductor amplifier  
UPS (Uninterruptible Power Supplies)**



**Low switching losses  
Low  $V_{CE(sat)}$  with positive temperature coefficient  
Including fast & soft recovery anti-parallel FWD  
Low inductance case  
High short-circuit capability (10s)  
Maximum junction temperature 175°C**

<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 = 80, H_{vjmax} = 175</math></b>	<b>100</b>	<b>A</b>
<b>Repetitive Peak Collector Current</b>	<b><math>I_{CRM}</math></b>	<b><math>t_p = 1ms</math></b>	<b>200</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_{tot}</math></b>	<b><math>T_C = 25, T_{jmax} = 175</math></b>	<b>555</b>	<b>W</b>

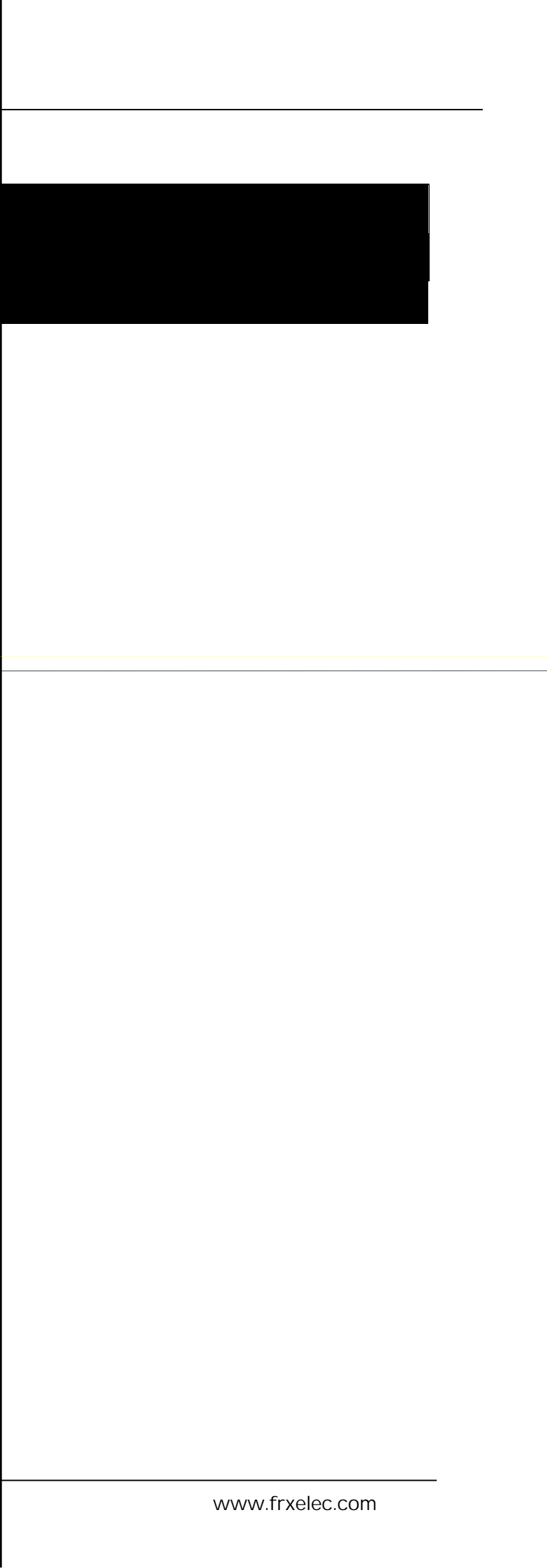
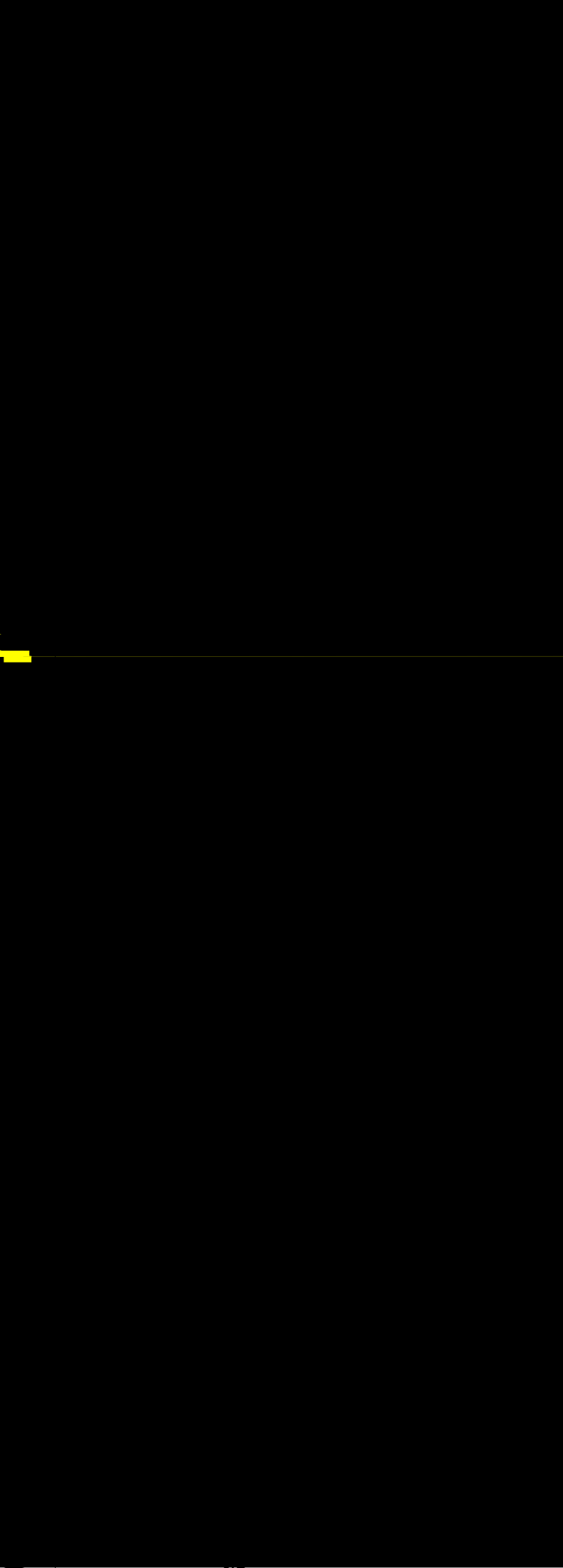


<b>Gate-emitter Threshold Voltage</b>	$V_{GE(th)}$	$V_{GE}=V_{CE}, I_C=33mA, T_j=25$	<b>50</b>	<b>58</b>	<b>65</b>	<b>V</b>
<b>Collector-Emitter Cut-off Current</b>	$I_{CES}$	$V_{CE}=120V, V_{GE}=0V, T_j=25C$			<b>10</b>	<b>mA</b>
<b>Collector-Emitter Saturation Voltage</b>	$V_{CE(sat)}$	$I_C=10A, V_{GE}=15V, T_j=25$		<b>185</b>	<b>225</b>	<b>V</b>
		$I_C=10A, V_{GE}=15V, T_j=125$		<b>215</b>		
		$I_C=10A, V_{GE}=15V, T_j=150$		<b>225</b>		
<b>Gate Charge</b>	$Q_g$			<b>078</b>		<b>μC</b>
<b>Input Capacitance</b>	$C_{is}$	$V_{CE}=25V, V_{GE}=0V$		<b>68</b>		<b>rF</b>
<b>Reverse Transfer Capacitance</b>	$C_{es}$	$f=1MHz, T_j=25C$		<b>032</b>		<b>rF</b>
<b>Gate-Emitter leakage current</b>	$I_{GES}$	$V_{CE}=0V, V_{GE}=20V, T_j=25$			<b>40</b>	<b>nA</b>
<b>Turn-on Delay/line</b>	$t_{(on)}$	$I_C=10A$ $V_{CE}=60V$ $V_{GE}=\pm 15V$ $I_s=35A$ <b>Inductive Load</b> $R_C=56$ $T_j=25$		<b>160</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>215</b>		<b>ns</b>
<b>Fall time</b>	$t_f$			<b>54</b>		<b>ns</b>
<b>Energy Dissipation During Turn-on/line</b>	$E_{on}$			<b>92</b>		<b>nJ</b>
<b>Energy Dissipation During Turn-off/line</b>	$E_{off}$			<b>58</b>		<b>nJ</b>
<b>Turn-on Delay/line</b>	$t_{(on)}$			<b>180</b>		<b>ns</b>
<b>Rise time</b>	$t_r$			<b>52</b>		<b>ns</b>
<b>Turn-off Delay/line</b>	$t_{(off)}$			<b>330</b>		<b>ns</b>
<b>Fall time</b>	$t_f$			<b>63</b>		<b>ns</b>
<b>Energy Dissipation During Turn-on/line</b>	$E_{on}$			<b>132</b>		<b>nJ</b>
<b>Energy Dissipation During Turn-off/line</b>	$E_{off}$			<b>94</b>		<b>nJ</b>
<b>SCData</b>	$I_C$		$T_p=10s, V_{CE}=15V, T_j=150, V_{CE}=300V, V_{CEM}=120V$		<b>500</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>100</b>	<b>A</b>
<b>Repetitive Peak Forward Current</b>	<b><math>I_{FRM}</math></b>	<b><math>t_F=1ms</math></b>	<b>200</b>	<b>A</b>
<b>Reverse</b>	<b><math>I_R</math></b>	<b><math>V_R=0, t_F=10ms, T_j=125</math></b>	<b>150</b>	<b>As</b>
		<b><math>V_R=0, t_F=10ms, T_j=150</math></b>	<b>150</b>	

<b>Forward Voltage</b>	<b><math>V_F</math></b>	<b><math>I_F=10A, T_j=25</math></b>	<b>180</b>	<b>240</b>	<b>V</b>
		<b><math>I_F=10A, T_j=125</math></b>	<b>185</b>		
		<b><math>I_F=10A, T_j=150</math></b>	<b>185</b>		
<b>Recovered Charge</b>	<b><math>Q_r</math></b>	<b><math>I_F=100A</math></b>	<b>88</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> <b><math>-d_f/d=350A/\mu s</math></b></b>	<b>105</b>		<b>A</b>
<b>Reverse Recovery Energy</b>	<b><math>E_{rr}</math></b>	<b><math>T_j=25</math></b>	<b>32</b>		<b>nJ</b>
<b>Recovered Charge</b>	<b><math>Q_r</math></b>	<b><math>I_F=100A</math></b>	<b>162</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> <b><math>-d_f/d=350A/\mu s</math></b></b>	<b>115</b>		<b>A</b>
<b>Reverse Recovery Energy</b>	<b><math>E_{rr}</math></b>	<b><math>T_j=125</math></b>	<b>54</b>		<b>nJ</b>





<b>TurnonDelay/line</b>	$t_{on}$	$I_C=50A$ $V_{CE}=60V$ $V_{GE}=\pm 15V$ $R_G=15$ $T_J=125$		<b>175</b>		<b>ns</b>
<b>Rise/line</b>	$t_r$			<b>42</b>		<b>ns</b>
<b>TurnoffDelay/line</b>	$t_{off}$			<b>46</b>		<b>ns</b>
<b>Fall/line</b>	$t_f$			<b>148</b>		<b>ns</b>
<b>Energy Dissipation During Turnon/line</b>	$E_{on}$			<b>726</b>		<b>nJ</b>
<b>Energy Dissipation During Turnoff/line</b>	$E_{off}$			<b>580</b>		<b>nJ</b>
<b>SCData</b>	$I_C$	$T_P=10\mu s, V_{CE}=15V, T_J=150$ , $V_{CE}=90V, V_{CEM} 120V$		<b>280</b>		<b>A</b>

<b>RepetitivePeakReverseVoltage</b>	$V_{RRM}$	$T_J=25$		<b>120</b>		<b>V</b>
<b>ContinuousDCForwardCurrent</b>	$I_F$			<b>35</b>		<b>A</b>
<b>RepetitivePeakForwardCurrent</b>	$I_{FRM}$	$t_p=1ns$		<b>70</b>		<b>A</b>
<b>Rvalue</b>	$R_\theta$	$V_{CE}=0, t_p=10ns, T_J=125$		<b>20</b>		<b>As</b>
		$V_{CE}=0, t_p=10ns, T_J=150$		<b>20</b>		

<b>ForwardVoltage</b>	$V_F$	$I_F=35A, T_J=25$		<b>195</b>		<b>V</b>
		$I_F=35A, T_J=125$		<b>195</b>		
		$I_F=35A, T_J=150$		<b>190</b>		
<b>RecoveredCharge</b>	$Q_r$	$I_F=35A$		<b>415</b>		<b>uC</b>
<b>PeakReverseRecoveryCurrent</b>	$I_{rr}$	$V_{CE}=60V$ $-d_i/d_t=160A/\mu s$		<b>42</b>		<b>A</b>
<b>ReverseRecoveryEnergy</b>	$E_{rec}$	$T_J=25$		<b>130</b>		<b>nJ</b>
<b>RecoveredCharge</b>	$Q_r$	$I_F=35A$		<b>800</b>		<b>uC</b>
<b>PeakReverseRecoveryCurrent</b>	$I_{rr}$	$V_{CE}=60V$ $-d_i/d_t=160A/\mu s$		<b>46</b>		<b>A</b>
<b>ReverseRecoveryEnergy</b>	$E_{rec}$	$T_J=125$		<b>238</b>		<b>nJ</b>



<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 50kHz, sine wave</b>	<b><math>I_{(A)}</math></b>	<b><math>T_C=100</math></b>	<b>80</b>	<b>A</b>
<b>Minimum RMS Current at Rectifier Output</b>	<b><math>I_{RSM}</math></b>	<b><math>T_C=100</math></b>	<b>120</b>	<b>A</b>
<b>Surge Forward Current</b>	<b><math>I_{SM}</math></b>	<b><math>V_F=0, t_F=10ms, T_J=25</math></b>	<b>1100</b>	<b>A</b>
<b>ft value</b>	<b><math>f_t</math></b>	<b><math>V_F=0, t_F=10ms, T_J=25</math></b>	<b>600</b>	<b>ns</b>

<b>Diode Forward Voltage</b>	<b><math>V_F</math></b>	<b><math>I_F=50A, T_J=125</math></b>	<b>0.98</b>	<b>V</b>
<b>Reverse Current</b>	<b><math>I_R</math></b>	<b><math>T_J=125, V_R=160V</math></b>	<b>20</b>	<b>mA</b>

<b>Rated Resistance</b>	<b><math>R_Z</math></b>		<b>50</b>	<b>k</b>
<b>Deviation of R10D</b>	<b>RR</b>	<b><math>T_C=100, R_{10D}=483</math></b>	<b>-5</b>	<b>5</b> %
<b>Power Dissipation</b>	<b><math>P_Z</math></b>			<b>200</b> mW
<b>B value</b>	<b><math>B_{250}</math></b>	<b><math>R_Z = R_{25} \exp(B_{250} (1/T_2 - 1/298.15))</math></b>	<b>335</b>	<b>K</b>



<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>Staying current enable</b>	<b>I<sub>sce</sub></b>			<b>6</b>		
<b>Module lead resistance, terminals dip</b>	<b>R<sub>CH/EE</sub></b>	<b>T<sub>c</sub>=25 , per switch</b>		<b>40</b>		
	<b>R<sub>ML/CC</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>027</b>	<b>KW</b>
		<b>per Dole in meter</b>			<b>050</b>	
		<b>per GBF bare copper</b>			<b>034</b>	
		<b>per Dole copper</b>			<b>120</b>	
		<b>per Dole redifier</b>			<b>043</b>	
<b>Thermal Resistance Case to Sink</b>	<b>R<sub>CS</sub></b>	<b>per GBF in meter</b>		<b>012</b>		<b>KW</b>
		<b>per Dole in meter</b>		<b>022</b>		
		<b>per GBF bare copper</b>		<b>014</b>		
		<b>per Dole copper</b>		<b>056</b>		
		<b>per Dole redifier</b>		<b>019</b>		
		<b>per Middle</b>		<b>009</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>300</b>		<b>g</b>





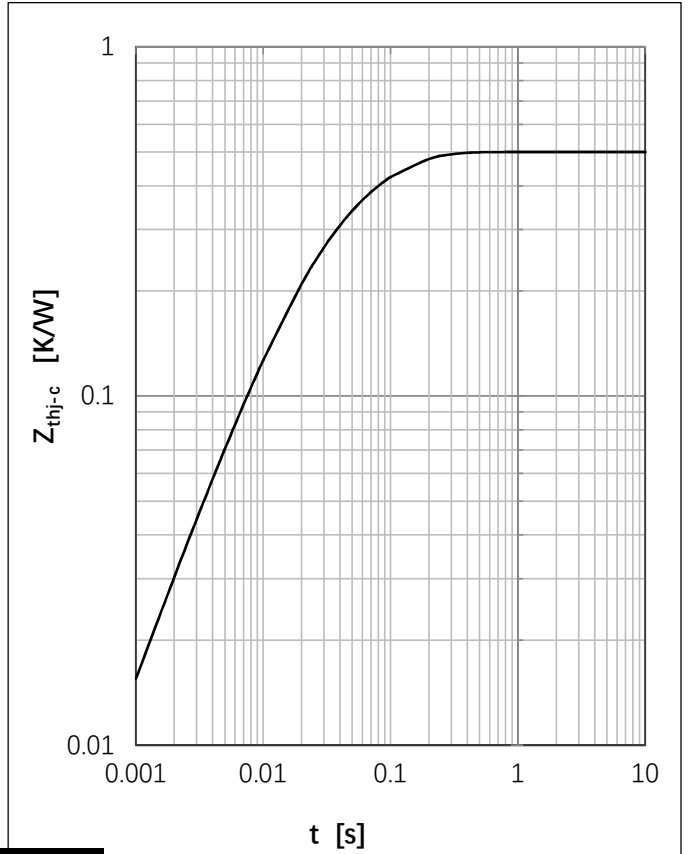
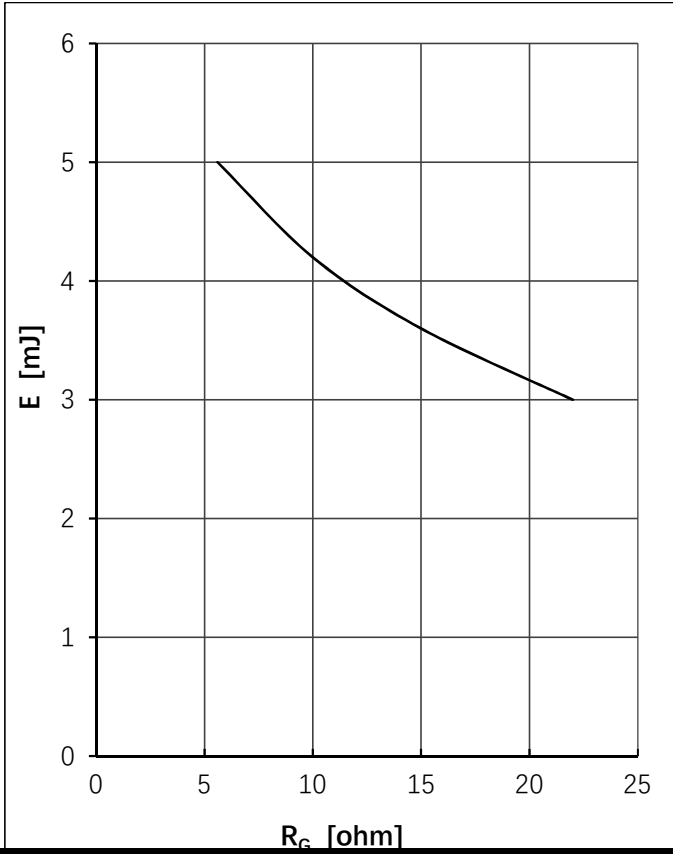
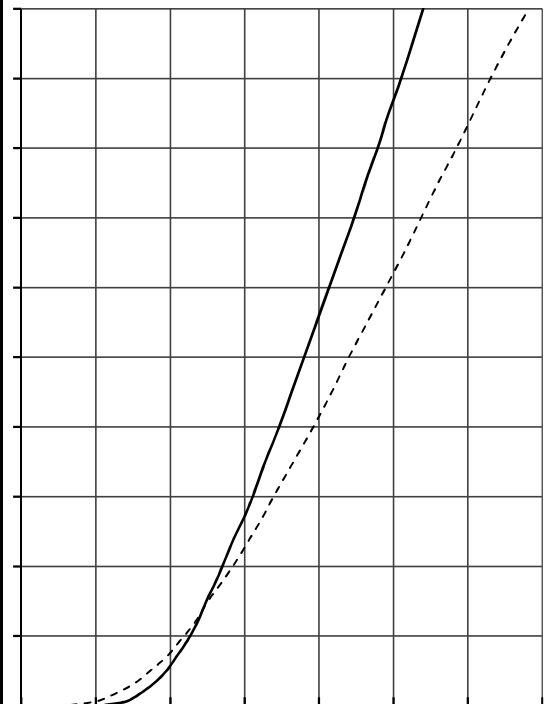
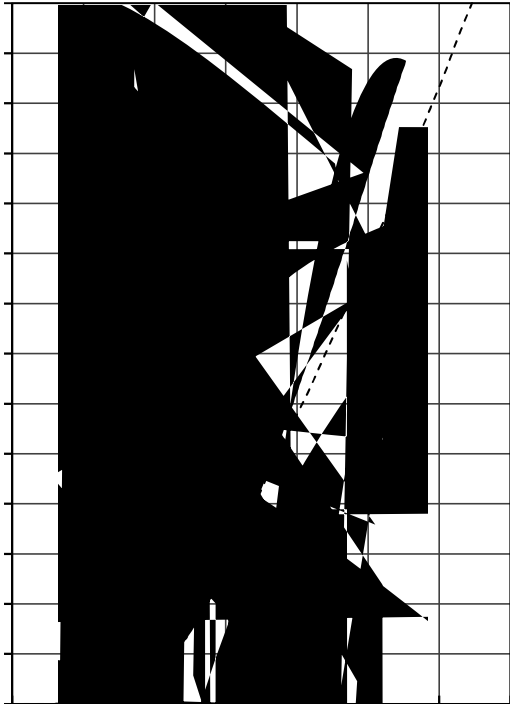



Fig10.Diode Transient Thermal Impedance





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