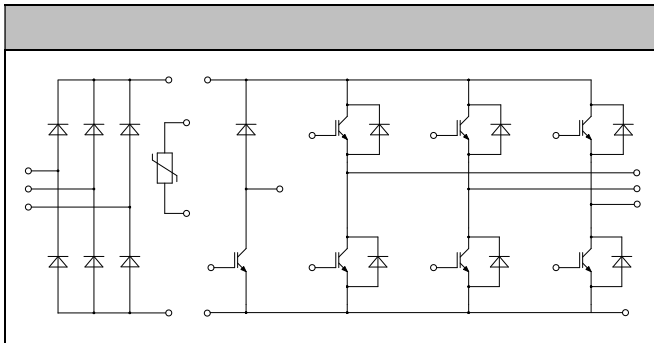




**120V**  
**50A**

**MitroDives**  
**AC and DC servo drive 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 = 100</math> " <math>T_{Jmax} = 175</math></b>	<b>50</b>	<b>A</b>
<b>Repetitive Peak Collector Current</b>	<b><math>I_{CRM}</math></b>	<b><math>t_p = 1ms</math></b>	<b>100</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</math> <math>T_{Jmax} = 175</math></b>	<b>288</b>	<b>W</b>

<b>Gate-emitter Threshold Voltage</b>	$V_{GE(th)}$	$V_{GE}=V_{CE}, I_C=17mA, T_j=25$	52	58	64	V
<b>Collector-Emitter Cut-off Current</b>	$I_{CS}$	$V_{CE}=120V, V_{GE}=0V, T_j=25C$			10	nA
<b>Collector-Emitter Saturation Voltage</b>	$V_{CE(sat)}$	$I_C=50A, V_{GE}=15V, T_j=25$		190	230	V
		$I_C=50A, V_{GE}=15V, T_j=125$		220		
		$I_C=50A, V_{GE}=15V, T_j=150$		230		
<b>Gate Charge</b>	$Q_g$			035		$\mu C$
<b>Input Capacitance</b>	$C_{is}$	$V_{CE}=25V, V_{GE}=0V$		260		rF
<b>Reverse Transfer Capacitance</b>	$C_{es}$	$f=1MHz, T_j=25C$		010		rF
<b>Gate-Emitter leakage current</b>	$I_{GS}$	$V_{CE}=0V, V_{GE}=20V, T_j=25$			40	nA
<b>Turn-on Delay/line</b>	$t_{(on)}$	$I_C=50A$ $V_{CE}=60V$ $V_{GE}=\pm 15V$ $R_G=15$ $T_j=25$		168		ns
<b>Rise time</b>	$t_r$			31		ns
<b>Turn-off Delay/line</b>	$t_{(off)}$			30		ns
<b>Fall time</b>	$t_f$			78		ns
<b>Energy Dissipation During Turn-on/line</b>	$E_{on}$			542		nJ
<b>Energy Dissipation During Turn-off/line</b>	$E_{off}$			415		nJ
<b>Turn-on Delay/line</b>	$t_{(on)}$	$I_C=50A$ $V_{CE}=60V$ $V_{GE}=\pm 15V$ $R_G=15$ $T_j=125$		175		ns
<b>Rise time</b>	$t_r$			42		ns
<b>Turn-off Delay/line</b>	$t_{(off)}$			46		ns
<b>Fall time</b>	$t_f$			148		ns
<b>Energy Dissipation During Turn-on/line</b>	$E_{on}$			726		nJ
<b>Energy Dissipation During Turn-off/line</b>	$E_{off}$			580		nJ
<b>SCData</b>	$I_C$	$T_p=10s, V_{CE}=15V, T_j=150, V_C=90V, V_{CEM}=120V$		220		A

A

V

Reverse Charge	$Q_r$	$I_F = 10A$			$\mu C$
Peak Reverse Recovery Current	$I_{rr}$	$V_{rr} = 60V$ $-d_f/d = 150A/\mu s$		53	A
Reverse Recovery Energy	$E_{rr}$	$T_j = 25$		165	nJ



<b>Collector-Emitter Voltage</b>	$V_{CES}$	$V_{CE}=0V, I_C=1mA, T_j=25$	<b>120</b>	<b>V</b>
<b>Continuous Collector Current</b>	$I_C$	$T_C=100^\circ C, \text{typical } 175$	<b>35</b>	<b>A</b>
<b>Repetitive Peak Collector Current</b>	$I_{CRM}$	$t_p=1ms$	<b>70</b>	<b>A</b>
<b>Gate-Emitter Voltage</b>	$V_{GES}$	$T_j=25$	<b>20</b>	<b>V</b>
<b>Total Power Dissipation</b>	$P_{tot}$	$T_C=25$ $T_{jmax}=175$	<b>227</b>	<b>W</b>

<b>Gate-emitter Threshold Voltage</b>	$V_{GE(th)}$	$V_{GE}=V_{CE}, I_C=14mA, T_j=25$	<b>52</b>	<b>58</b>	<b>64</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>nA</b>	
<b>Collector-Emitter Saturation Voltage</b>	$V_{CE(sat)}$	$I_C=35A, V_{CE}=15V, T_j=25$		<b>185</b>	<b>225</b>	<b>V</b>	
		$I_C=35A, V_{CE}=15V, T_j=125$		<b>215</b>			
		$I_C=35A, V_{CE}=15V, T_j=150$		<b>225</b>			
<b>Gate Charge</b>	$Q_g$			<b>027</b>		<b>nC</b>	
<b>Input Capacitance</b>	$C_{in}$	$V_{CE}=25V, V_{GE}=0V$		<b>200</b>		<b>nF</b>	
<b>Reverse Transfer Capacitance</b>	$C_{tr}$	$f=1MHz, T_j=25C$		<b>007</b>		<b>nF</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>	$t_{on}$	$I_C=35A$ $V_{CE}=60V$ $V_{GE}=\pm 15V$ $R_g=12$ $T_j=25$		<b>25</b>		<b>ns</b>	
<b>Rise time</b>	$t_r$			<b>13</b>		<b>ns</b>	
<b>Turn-off Delay/line</b>	$t_{off}$			<b>21</b>		<b>ns</b>	
<b>Fall time</b>	$t_f$			<b>115</b>		<b>ns</b>	
<b>Energy Dissipation During Turn-on</b>	$E_{on}$				<b>190</b>		<b>nJ</b>
<b>Energy Dissipation During Turn-off</b>	$E_{off}$				<b>200</b>		<b>nJ</b>



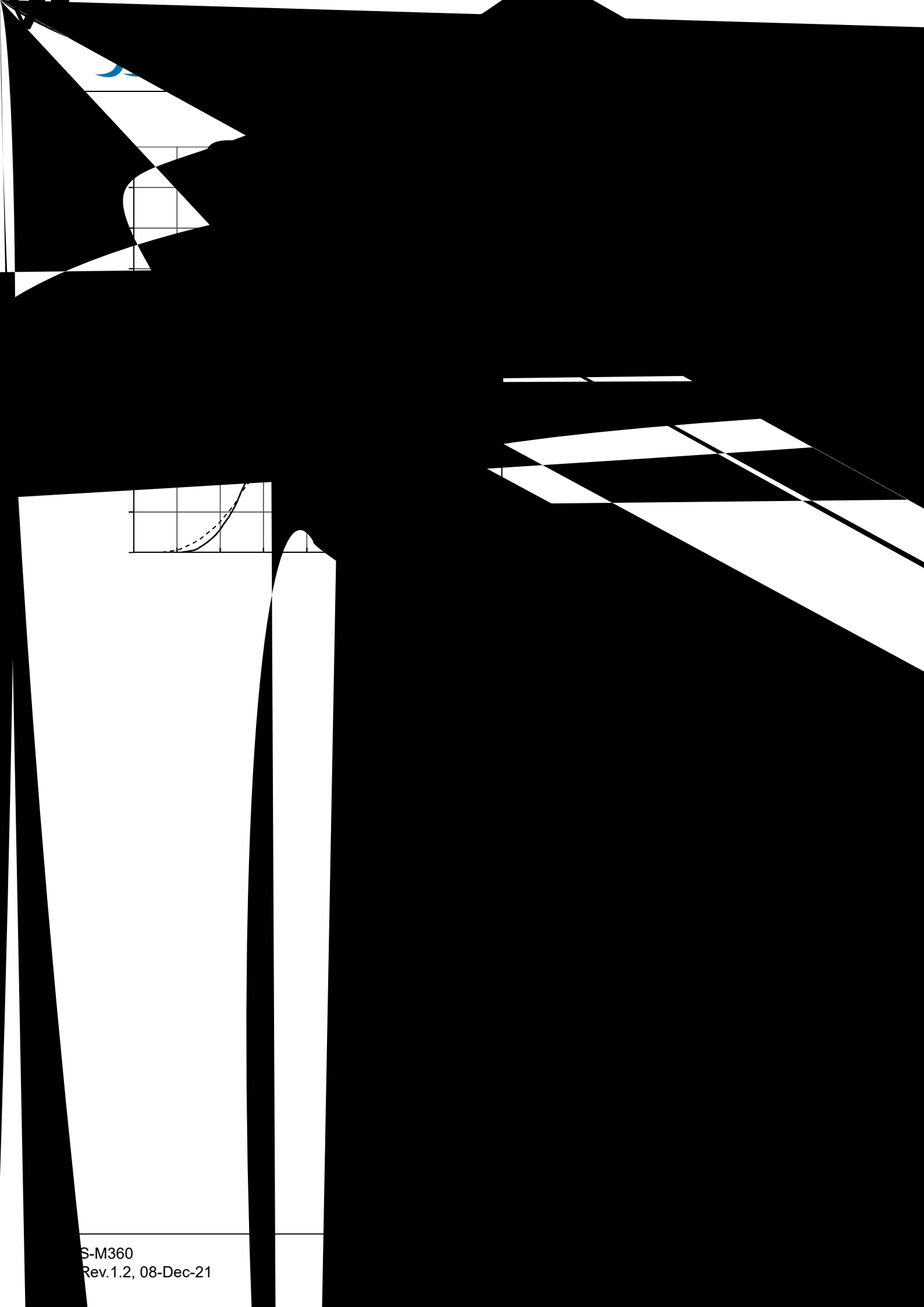


<b>Repetitive Peak Reverse Voltage</b>	<b><math>V_{RRM}</math></b>	<b><math>T_f=25</math></b>	<b>160</b>	<b>V</b>
<b>Average Output Current 50kHz, sine wave</b>	<b><math>I_{(AV)}</math></b>	<b><math>T_c=100</math></b>	<b>6</b>	<b>A</b>
<b>Minimum RMS Current at Rectifier Output</b>	<b><math>I_{RSM}</math></b>	<b><math>T_c=100</math></b>	<b>110</b>	<b>A</b>
<b>Surge Forward Current</b>	<b><math>I_{SM}</math></b>	<b><math>V_f=0, t_f=10ms, T_f=5</math></b>	<b>80</b>	<b>A</b>
<b>ft value</b>	<b><math>f_t</math></b>	<b><math>V_f=0, t_f=10ms, T_f=5</math></b>	<b>360</b>	<b>As</b>

<b>Diode Forward Voltage</b>	<b><math>V_f</math></b>	<b><math>I_f=50A, T_f=125</math></b>	<b>10</b>		<b>V</b>
<b>Reverse Current</b>	<b><math>I_r</math></b>	<b><math>T_f=125, V_r=160V</math></b>		<b>15</b>	<b>nA</b>

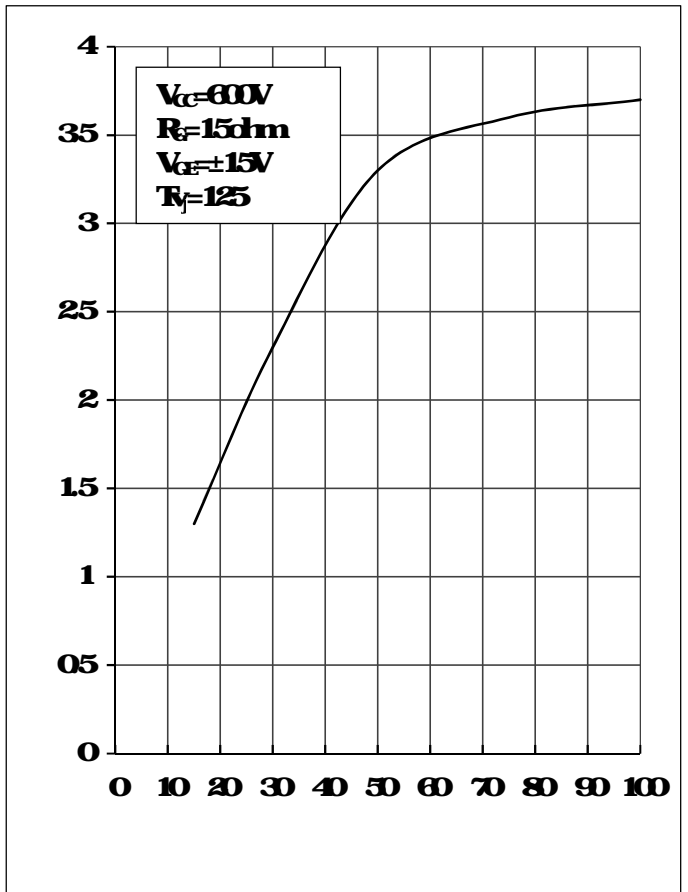
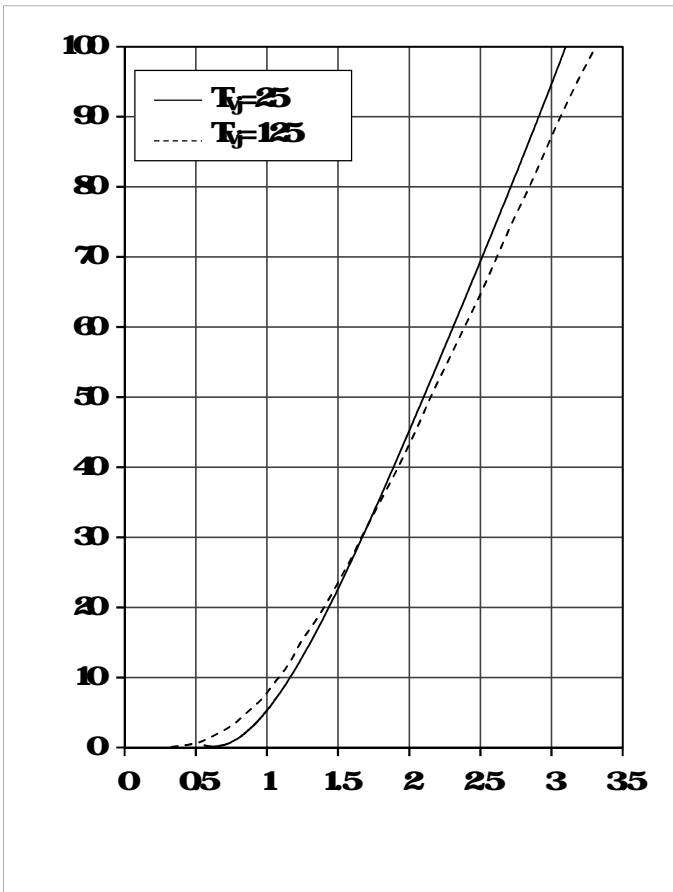
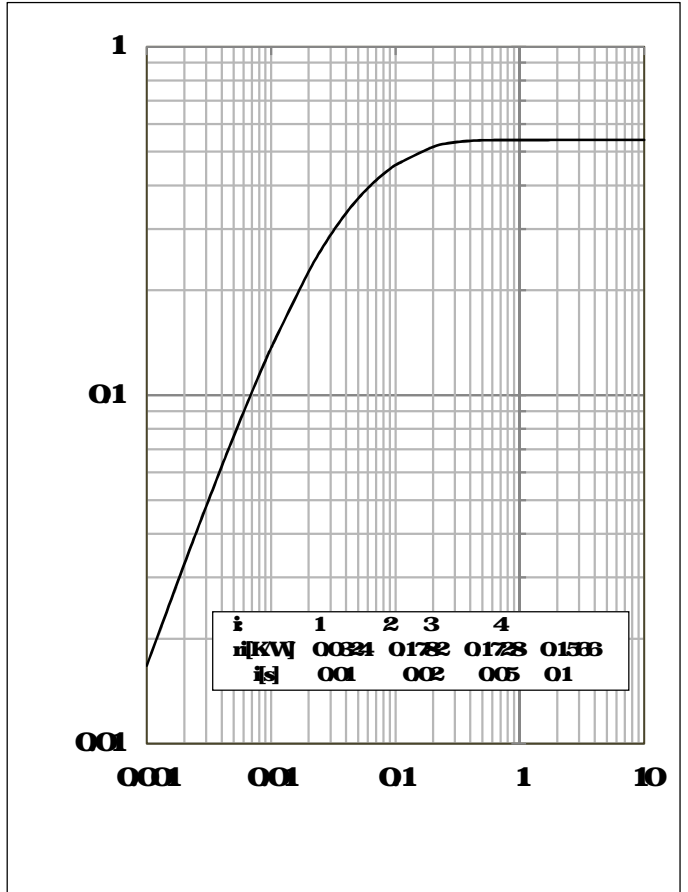
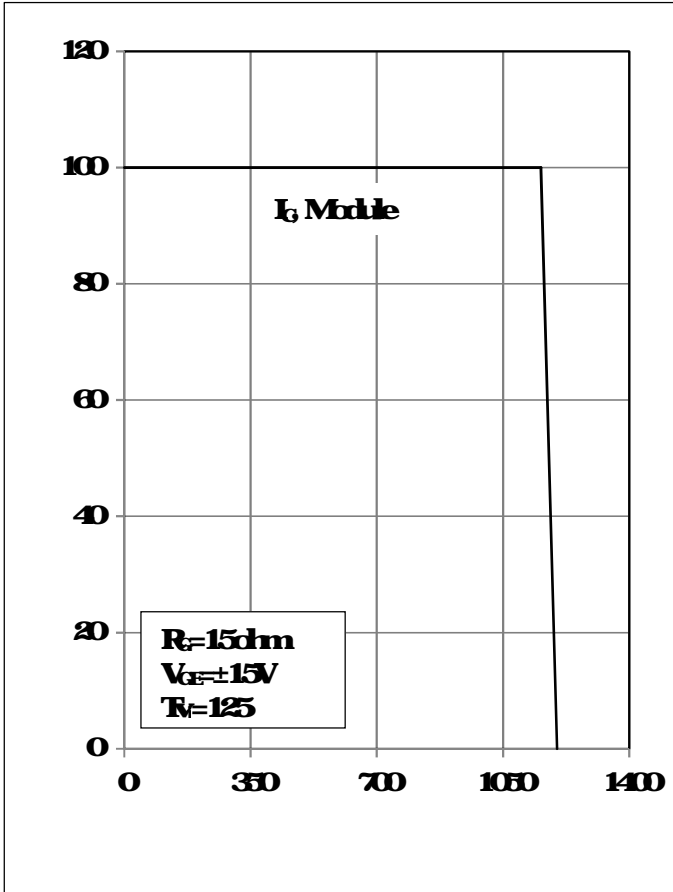
<b>Rated Resistance</b>	<b><math>R_{\theta}</math></b>		<b>50</b>		<b>k</b>
<b>Deviation of R100</b>	<b>RR</b>	<b><math>T_c=100, R_{100}=483</math></b>	<b>-5</b>	<b>5</b>	<b>%</b>
<b>Power Dissipation</b>	<b><math>P_{\theta}</math></b>			<b>200</b>	<b>nW</b>
<b>B value</b>	<b><math>E_{500}</math></b>	<b><math>R_{\theta} = R_{\theta} \exp\{P_{500} (1/T_c - 1/298.15)\}</math></b>	<b>375</b>		<b>K</b>

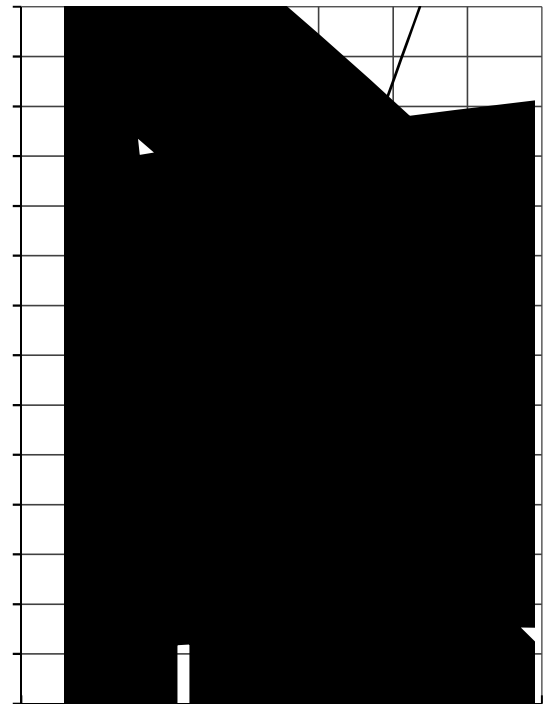
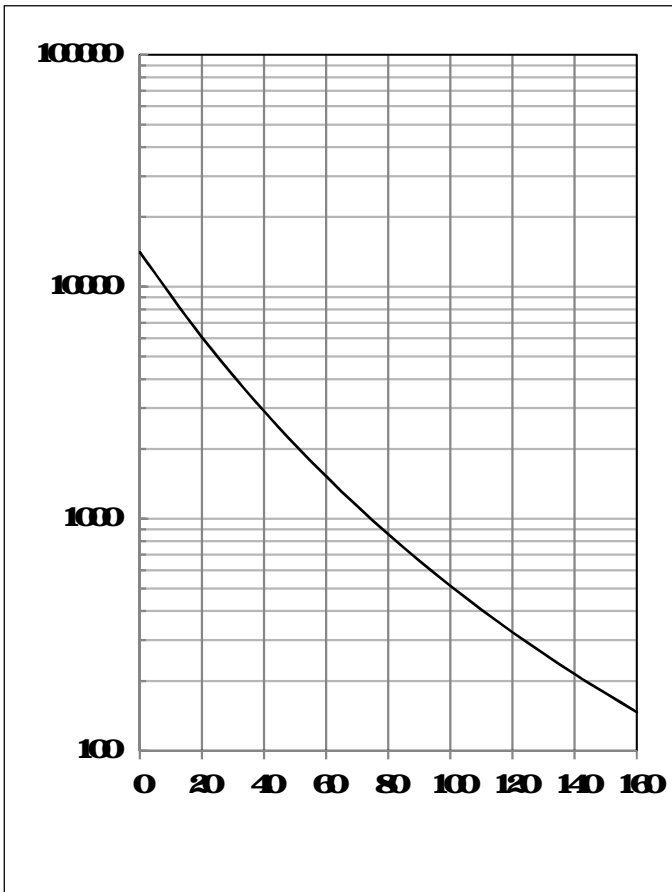
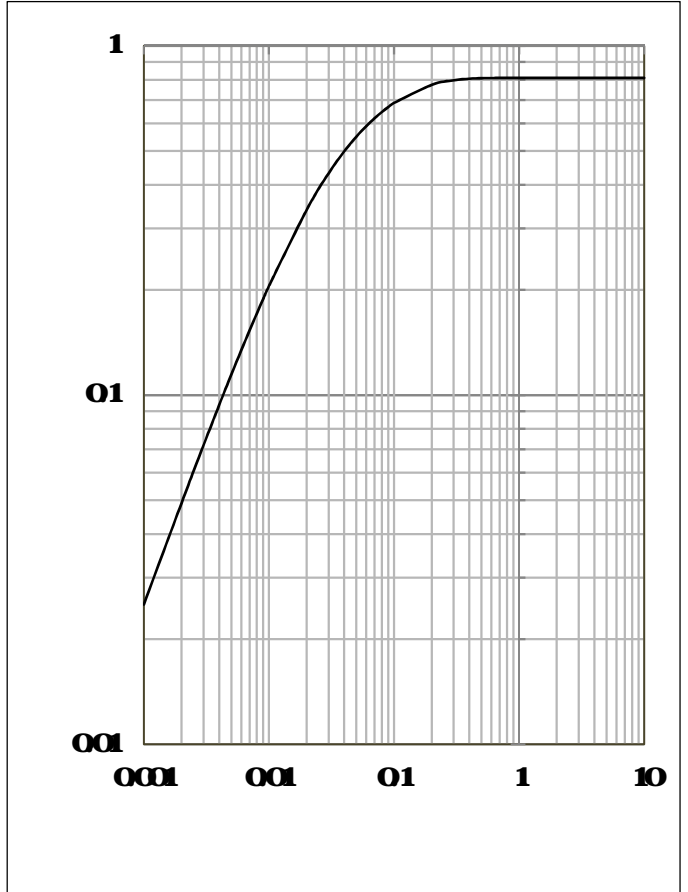
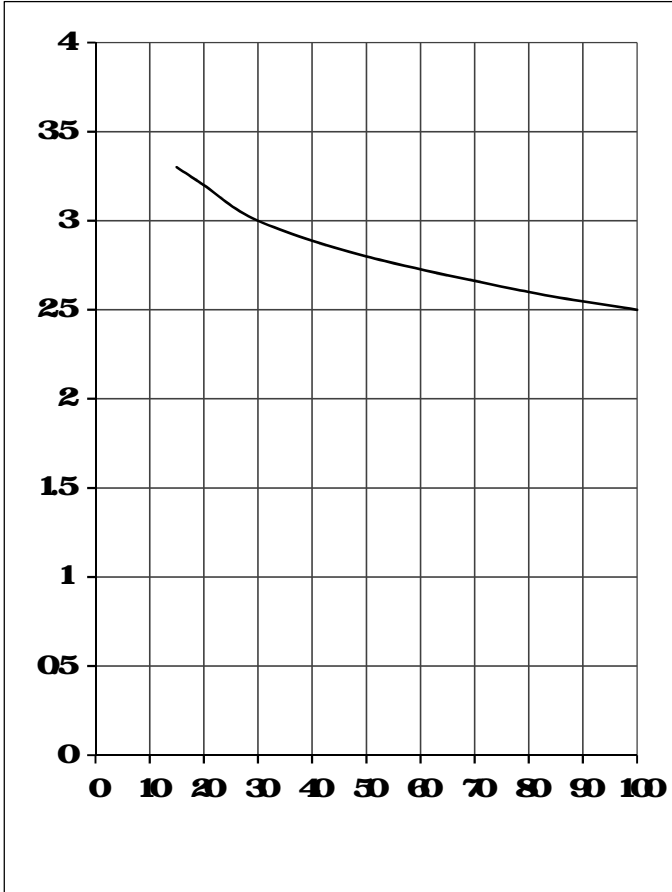


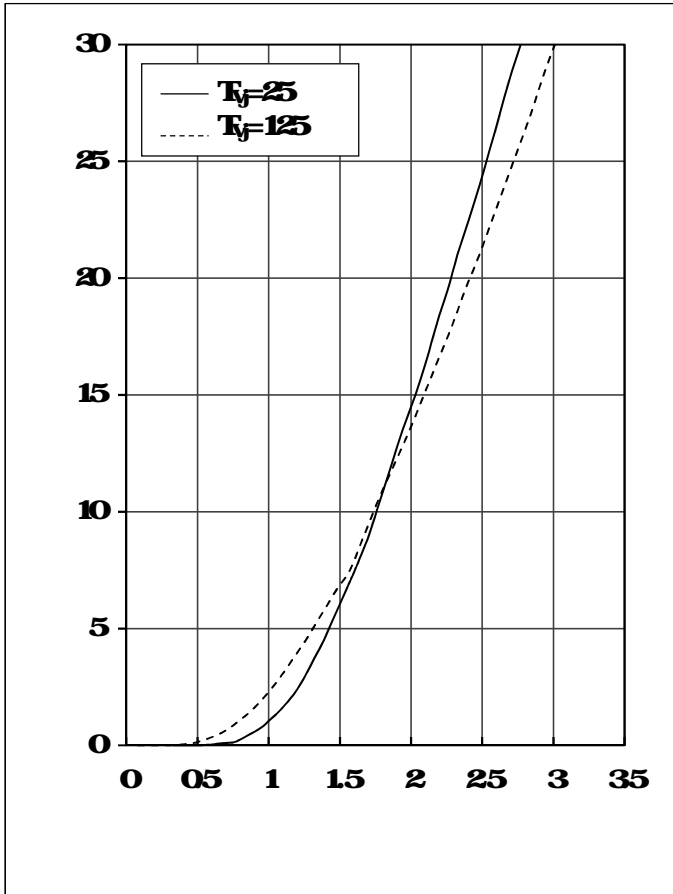


S-M360  
Rev.1.2, 08-Dec-21











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