

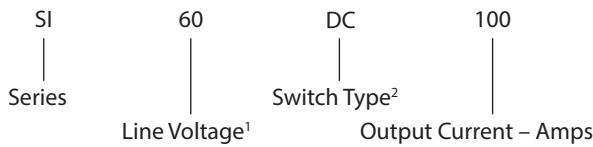
**FEATURES/BENEFITS**

- Latest generation of High Voltage IGBT Technology
- Innovative isolated driver ensures fast power transistor turn on and off and thus low power transient
- Ultra low output leakage current
- Low control current consumption
- Triggered control input to avoid linear control risks
- Low conducted and radiated disturbances



| Part Number | Description                     |
|-------------|---------------------------------|
| SI60DC100   | 100A, 600 Vdc Solid-State Relay |
| SI120DC50   | 50A, 1200 Vdc Solid-State Relay |
| SI170DC25   | 25A, 1700 Vdc Solid-State Relay |

**Part Number Explanation**



**NOTES**

- 1) Line Voltage (peak): 60 = 600 Vdc; 120 = 1200 Vdc; 170 = 1700 Vdc;
- 2) Switch Type: DC = DC

**ELECTRICAL SPECIFICATIONS**

(+25°C ambient temperature unless otherwise specified)

**INPUT (CONTROL) SPECIFICATIONS**

|                         | Min | Max | Units |
|-------------------------|-----|-----|-------|
| Control Range           | 4.5 | 32  | Vdc   |
| Input Current Range     | 25  | 42  | mAdc  |
| Typical Turn-On Voltage | 3.5 |     | Vdc   |
| Must Turn-Off Voltage   | 1   |     | Vdc   |
| Reverse Voltage         |     | 32  | Vdc   |
| Reverse Leakage Current |     | 1   | mA    |

**CONTROL CHARACTERISTIC**

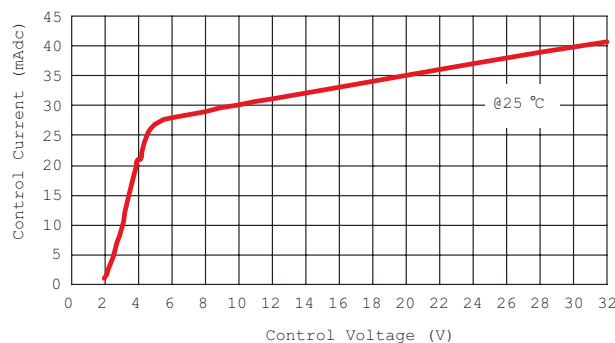
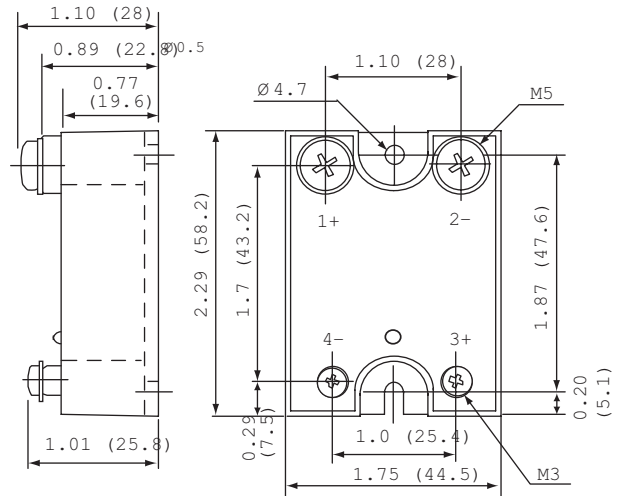


Figure 2

**MECHANICAL SPECIFICATION**



Tolerance  $\pm 0.3$   
Dimensions in inches (mm)  
Weight: 3.52 oz. (100g)

Figure 1

**BLOCK DIAGRAM**

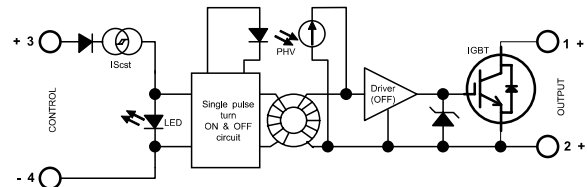


Figure 3

**ELECTRICAL SPECIFICATIONS**  
(+25°C ambient temperature unless otherwise specified)

**OUTPUT (LOAD) SPECIFICATIONS**

|  | Min    | Max     | Units |
|--|--------|---------|-------|
| <b>Operating Range</b>   |        |         |       |
| SI60DC100  | 0      | 500     | Vdc   |
| SI120DC50  | 0      | 1000    | Vdc   |
| SI170DC25  | 0      | 1400    | Vdc   |
| <b>Peak Voltage</b>  |        |         |       |
| SI60DC100  |        | 600     | Vpeak |
| SI120DC50  |        | 1200    | Vpeak |
| SI170DC25  |        | 1700    | Vpeak |
| <b>Reverse Voltage (Internal Diode)</b>                        |        |         |       |
| SI60DC100  |        | 1.4     | V     |
| SI120DC50  |        | 1.4     | V     |
| SI170DC25  |        | 3.3     | V     |
| <b>Maximum Nominal Current (Resistive)</b>                     |        |         |       |
| SI60DC100  |        | 100     | A     |
| SI120DC50  |        | 50      | A     |
| SI170DC25  |        | 25      | A     |
| <b>Maximum Peak Current Rating (Non-Repetitive) (ON-State)</b> |        |         |       |
| SI60DC100  |        | 550     | A     |
| SI120DC50  |        | 320     | A     |
| SI170DC25  |        | 40      | A     |
| <b>Leakage Current</b>   |        |         |       |
| SI60DC100  |        | 1       | mA    |
| SI120DC50  |        | 1       | mA    |
| SI170DC25  |        | 1.5     | mA    |
| <b>Max On-State Voltage Drop</b>                               |        |         |       |
|  | @25 °C | @125 °C |       |
| SI60DC100  | 1.35   | 1.45    | V     |
| SI120DC50  | 1.5    | 1.7     | V     |
| SI170DC25  | 3.3    | 3.3     | V     |
| <b>Output Capacitance (Typical)</b>                            |        |         |       |
| SI60DC100  |        | 300     | pF    |
| SI120DC50  |        | 300     | pF    |
| SI170DC25  |        | 90      | pF    |
| <b>Junction-Case Thermal Resistance</b>                        |        |         |       |
| SI60DC100  |        | .385    | °C/W  |
| SI120DC50  |        | .365    | °C/W  |
| SI170DC25  |        | 1.25    | °C/W  |

**ELECTRICAL SPECIFICATIONS (Continued)**  
(+25°C ambient temperature unless otherwise specified)

**OUTPUT (LOAD) SPECIFICATIONS**

|   | Min | Max | Units |
|---|-----|-----|-------|
| <b>Built-In Heat Sink Thermal Resistance (Vertically Mounted)</b> |     |     |       |
|   |     | 10  | °C/W  |
| <b>Heat Sink Thermal Time Constant</b>                            |     |     |       |
|   |     | 10  | min   |
| <b>Control Inputs/Power Outputs</b>                               |     |     |       |
| <b>Insulation Voltage</b>   |     | 4   | kV    |
| <b>Turn-On Time</b>   |     | 10  | µs    |
| <b>Turn-On Delay</b>  |     | 600 | µs    |
| <b>Turn-Off Time</b>  |     |     |       |
| SI60DC100   |     | 10  | µs    |
| SI120DC50   |     | 50  | µs    |
| SI170DC25   |     | 50  | µs    |
| <b>Turn-Off Delay</b>   |     | 100 | µs    |
| <b>On-Off Frequency</b>   |     |     |       |
| SI60DC100   |     | 700 | Hz    |
| SI120DC50   |     | 200 | Hz    |
| SI170DC25   |     | 200 | Hz    |

**TIME DIAGRAMS**

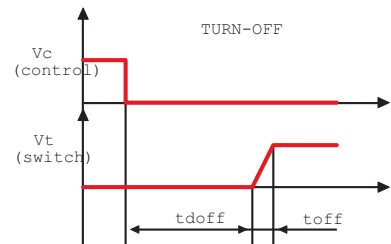
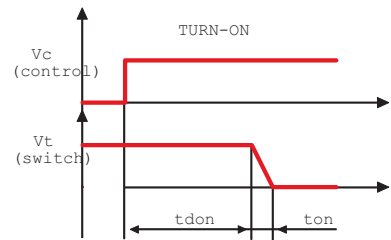


Figure 4

**GENERAL SPECIFICATIONS**  
(+25°C ambient temperature unless otherwise specified)

**ENVIRONMENTAL SPECIFICATIONS**

|                        | Min  | Max  | Units |
|------------------------|------|------|-------|
| Operating Temperature  | -40  | +90  | °C    |
| Storage Temperature    | -40  | +100 | °C    |
| Input-Output Isolation | 4000 |      | Vrms  |
| Insulation Resistance  | 1    |      | GΩ    |
| Insulation Capacitance | < 8  |      | pF    |
| Junction Temperature   |      |      |       |
| Steady State           |      | 125  | °C    |
| Transient              |      | 175  | °C    |

**CONNECTIONS**

|  | Power        | Control      |
|--|--------------|--------------|
| Screwdriver  | Phillips NR2 | Phillips NR1 |
| Tightening Torque                                      | 1.8 N.m      | 0.8 N.m      |
| Insulated crimp terminals<br>(Round Tabs, Eyelet Type) | M5           | M3           |

**MISCELLANEOUS**

|             |                    |
|-------------|--------------------|
| Display     | Green LED (ON)     |
| Housing     | UL94V0             |
| Mounting    | 2 screws (M4x12mm) |
| Noise Level | No audible noise   |

**GENERAL**

|                                 |            |
|---------------------------------|------------|
| Standards                       | IEC60947-1 |
| Protection Level                | IP00       |
| Protection Against Direct Touch | None       |
| CE Marking                      | Yes        |

**E.M.C. EMISSION**

|                                   |           |
|-----------------------------------|-----------|
| Radiated & Conducted Disturbances | NFEN55011 |
|-----------------------------------|-----------|

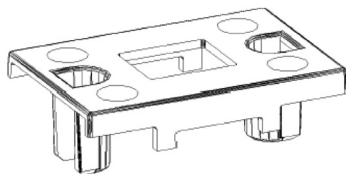


Figure 7

PROTECTIVE COVER AVAILABLE  
Contact Factory

**HIGH SIDE WIRING DIAGRAM**  
(Load Connected to “-”)

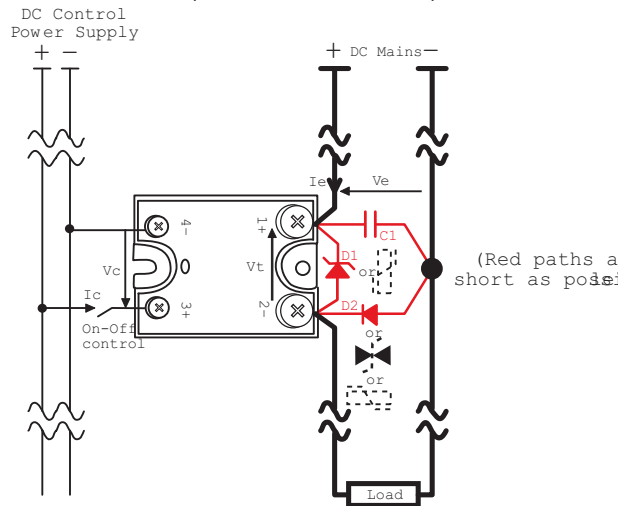


Figure 5

**LOW SIDE WIRING DIAGRAM**  
(Load Connected to “+”)

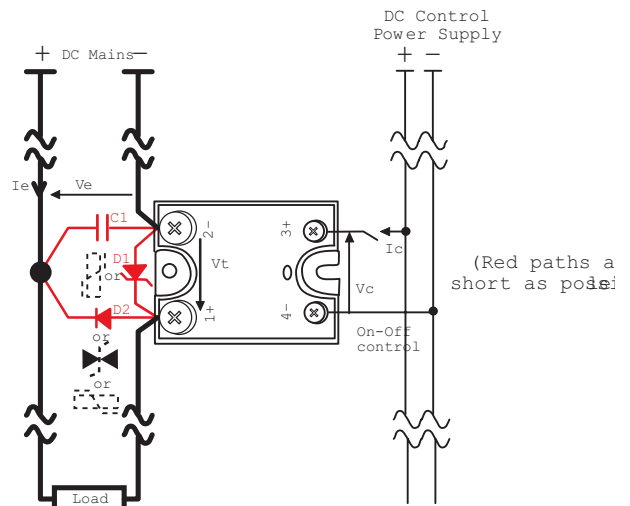


Figure 6

OUTPUT RELAY CHARACTERISTIC CURVES FOR SI60DC100

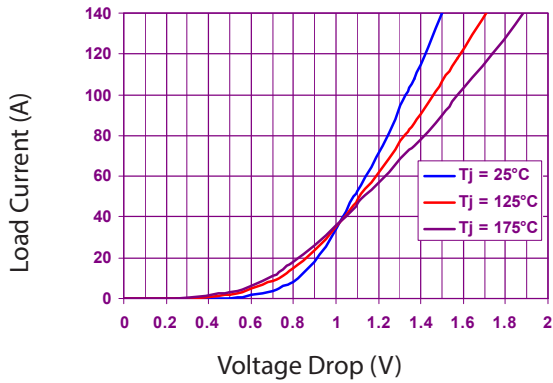


Figure 8a

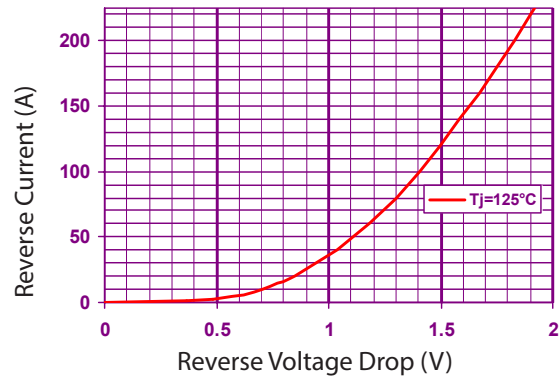


Figure 8b

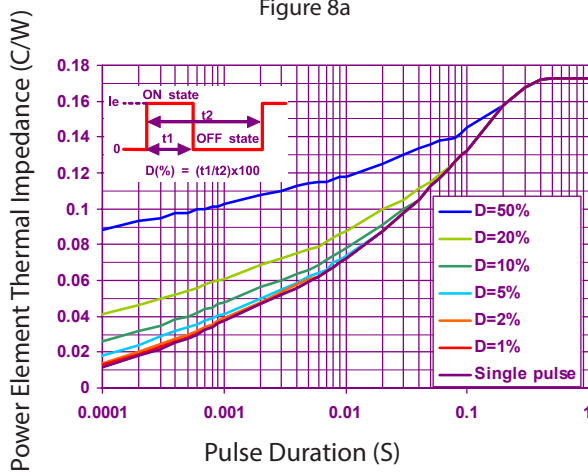


Figure 8c

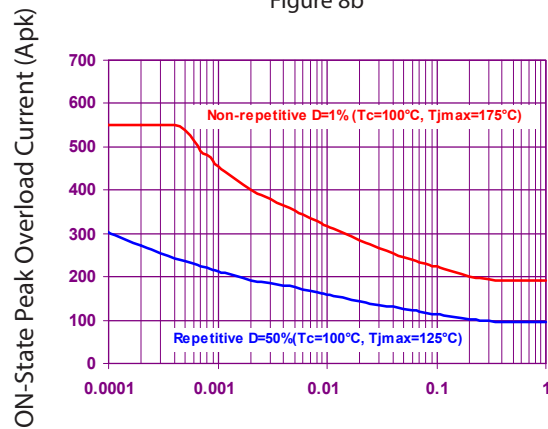
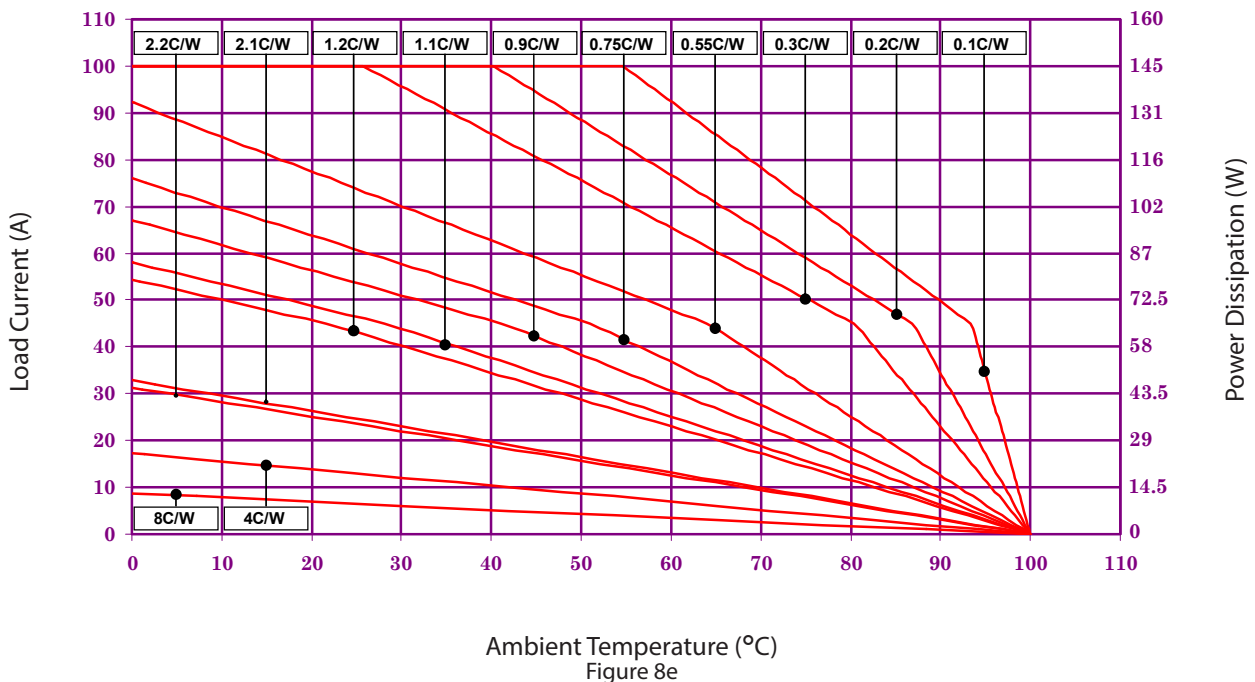


Figure 8d



Ambient Temperature (°C)  
Figure 8e

OUTPUT RELAY CHARACTERISTIC CURVES FOR S1120DC50

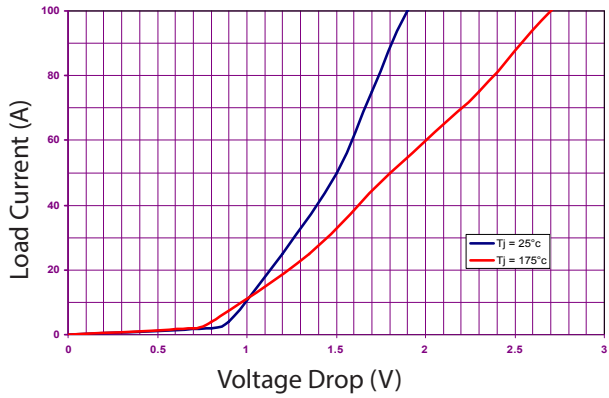


Figure 9a

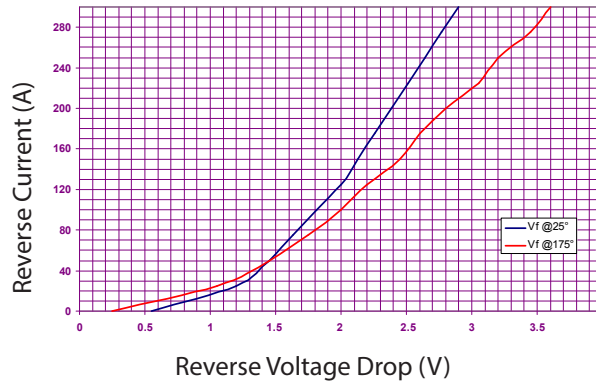


Figure 9b

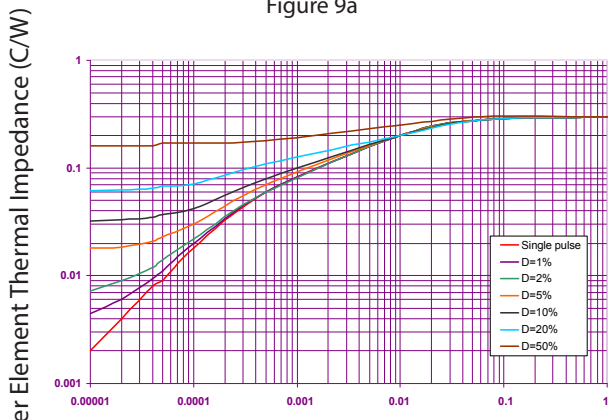


Figure 9c

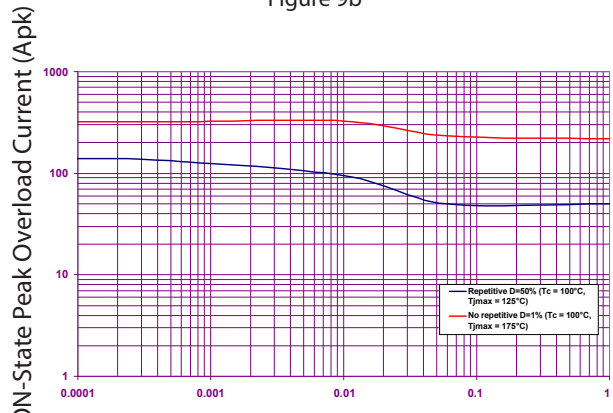


Figure 9d

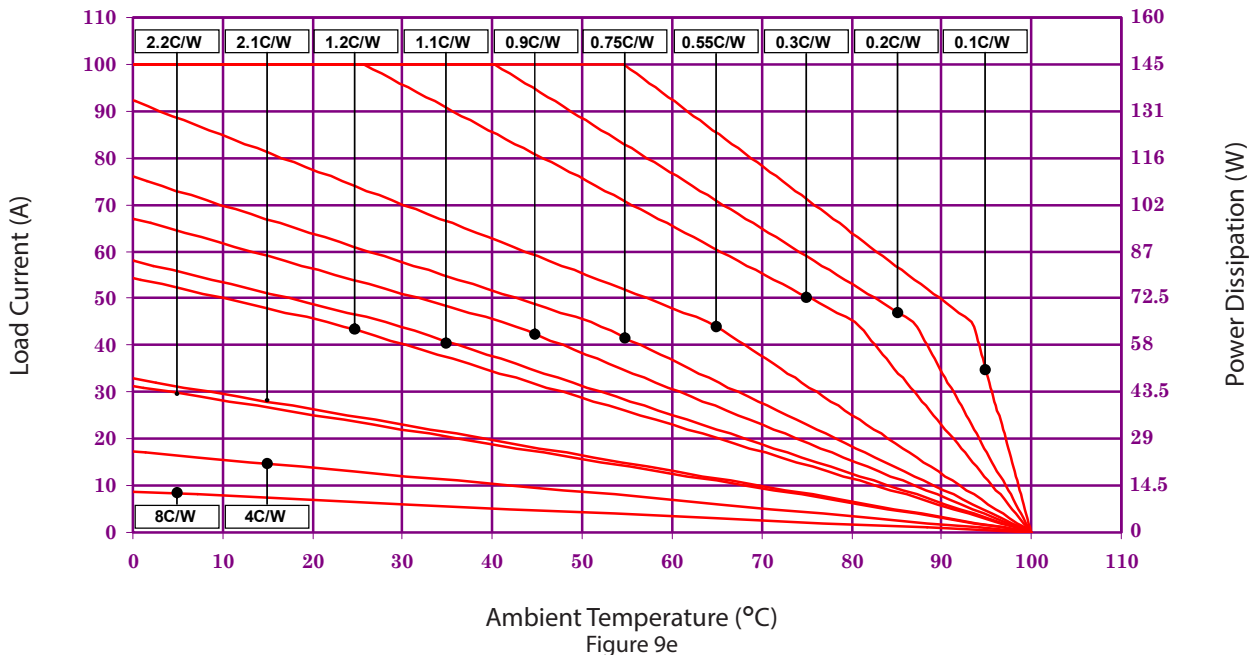
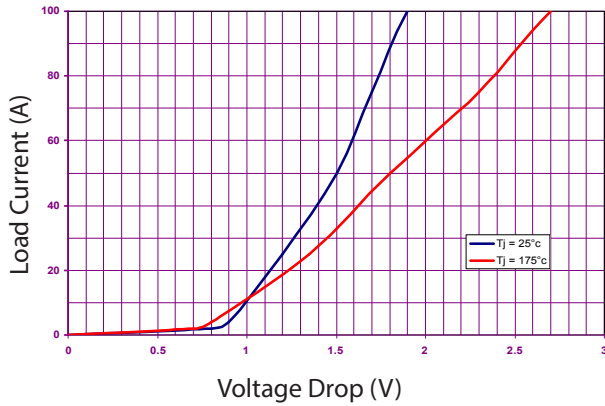
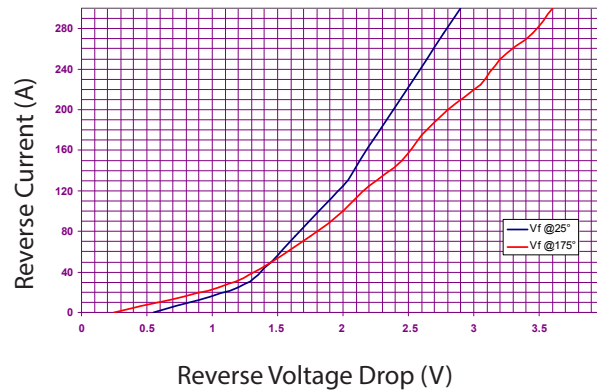


Figure 9e

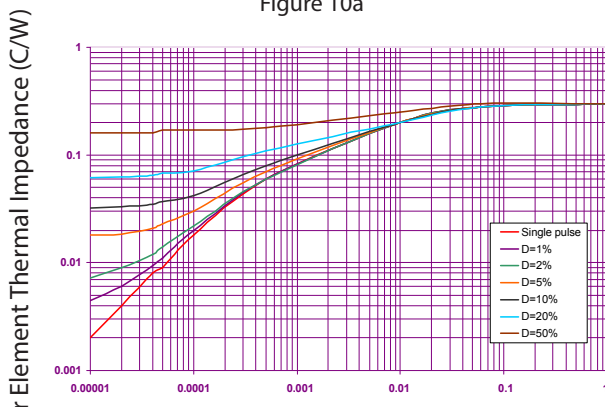
OUTPUT RELAY CHARACTERISTIC CURVES FOR SI170DC25



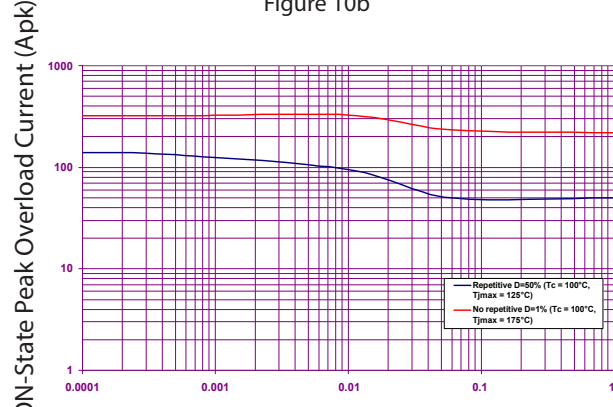
Voltage Drop (V)  
Figure 10a



Reverse Voltage Drop (V)  
Figure 10b



Pulse Duration (S)  
Figure 10c



Pulse Duration (S)  
Figure 10d

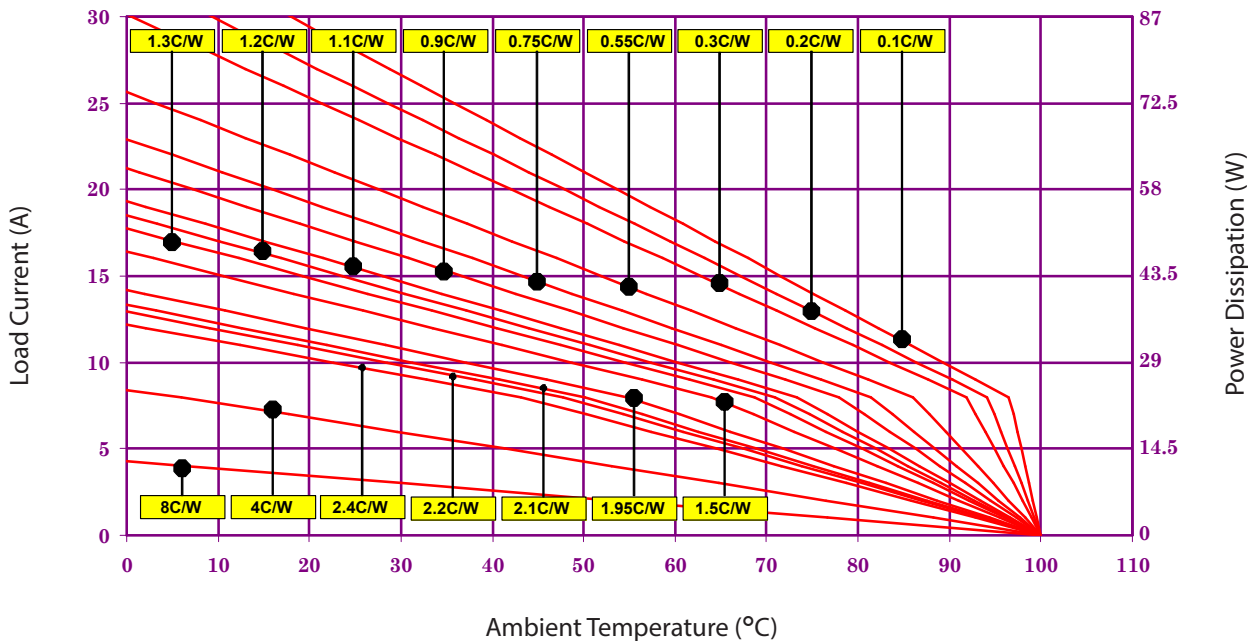


Figure 10e

NOTES  
1. For additional/custom options, contact factory.

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