Maximum Ratings @T_A = 25°C unless otherwise specified

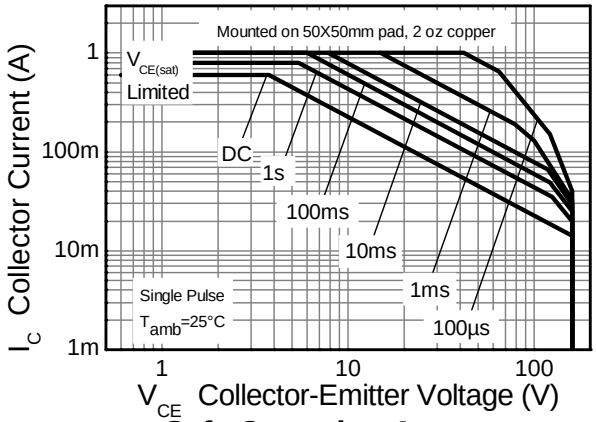
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	180	V
Collector-Emitter Voltage	V_{CEO}	160	V
Emitter-Base Voltage	V_{EBO}	6	V
Continuous Collector Current	I_C	600	mA

Thermal Characteristics @T_A = 25°C unless otherwise specified

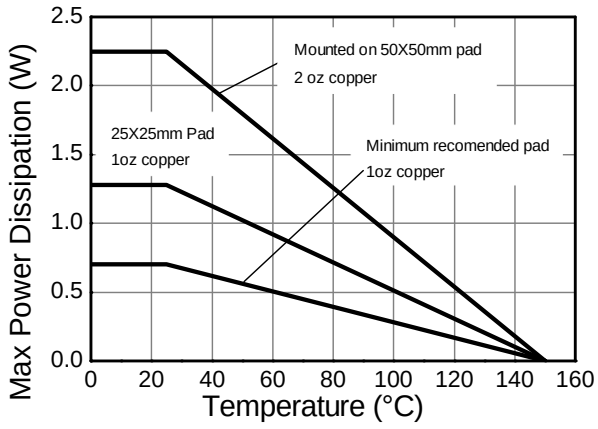
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 4)	P_D	2.25	W
Thermal Resistance, Junction to Ambient Air (Note 4)	$R_{\theta JA}$	55.5	°C/W
Power Dissipation (Note 5)	P_D	1.28	W
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	97.4	°C/W
Power Dissipation (Note 6)	P_D	0.7	W
Thermal Resistance, Junction to Ambient Air (Note 6)	$R_{\theta JA}$	179	°C/W
Thermal Resistance, Junction to Collector Terminal	$R_{\theta JT}$	30	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Notes: 4. Device mounted on 1.6mm FR-4 PCB, single sided 2 oz. copper, collector pad dimensions 50mm x 50mm.
5. Device mounted on 1.6mm FR-4 PCB, single sided 1 oz. copper, collector pad dimensions 25mm x 25mm.
6. Device mounted on 1.6mm FR-4 PCB, single sided 1 oz. copper, minimum recommended pad layout.

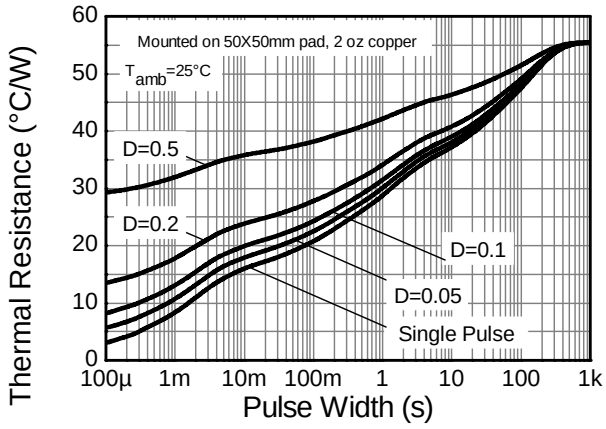
Thermal Characteristics



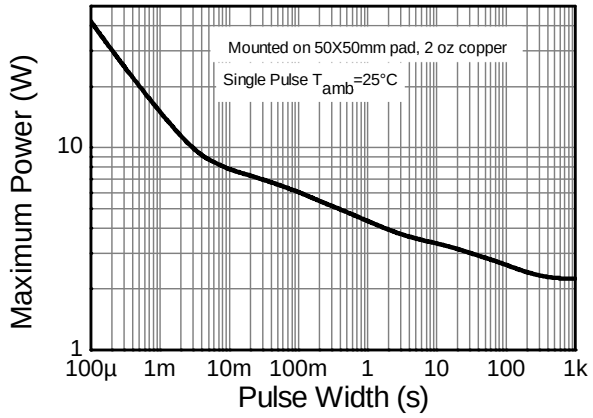
Safe Operating Area



Derating Curve



Transient Thermal Impedance



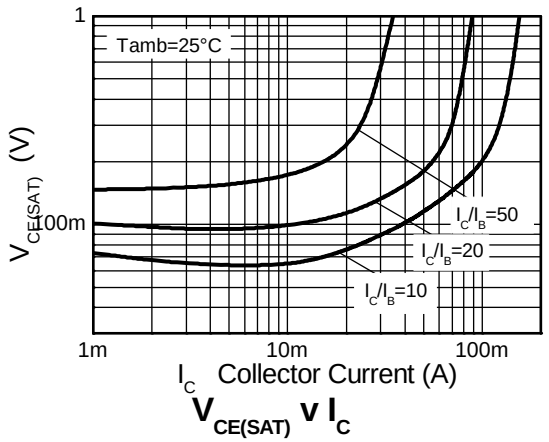
Pulse Power Dissipation

Electrical Characteristics @T_A = 25°C unless otherwise specified

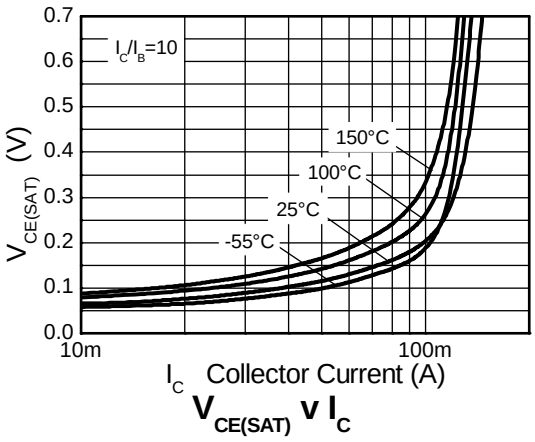
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	180	270	–	V	I_C = 100μA
Collector-Emitter Breakdown Voltage (Note 7)	BV_{CEO}	160	200	–	V	I_C = 1mA
Emitter-Base Breakdown Voltage	BV_{EBO}	6.0	7.85	–	V	I_E = 10μA
Collector Cutoff Current	I_{CBO}	– –	<1 –	50 50	nA μA	V_{CB} = 120V V_{CB} = 120V, T_A = 100°C
Collector-Emitter Saturation Voltage (Note 7)	$V_{CE(sat)}$	– –	65 115	150 200	mV mV	I_C = 10mA, I_B = 1mA I_C = 50mA, I_B = 5mA
Base-Emitter Saturation Voltage (Note 7)	$V_{BE(sat)}$	– –	760 840	1000 1200	mV mV	I_C = 10mA, I_B = 1mA I_C = 50mA, I_B = 5mA
DC Current Gain (Note 7)	h_{FE}	80 80 30	130 145 65	– 250 –	–	V_{CE} = 5V, I_C = 1mA V_{CE} = 5V, I_C = 10mA V_{CE} = 5V, I_C = 50mA
Transition Frequency	f_T	–	130	–	MHz	V_{CE} = 10V, I_C = 10mA, f = 100MHz
Output Capacitance (Note 7)	C_{obo}	–	–	6	pF	V_{CB} = 10V, f = 1MHz
Delay Time	$t_{(d)}$	–	95	–	ns	V_{CC} = 510V, I_C = 10mA, I_{B1} = I_{B2} = 1mA
Rise Time	$t_{(r)}$	–	64	–	Ns	
Storage Time	$t_{(s)}$	–	1256	–	ns	
Delay Time	$t_{(f)}$	–	140	–	ns	

Notes: 7. Pulse Test: Pulse width ≤300μs. Duty cycle ≤2.0%.

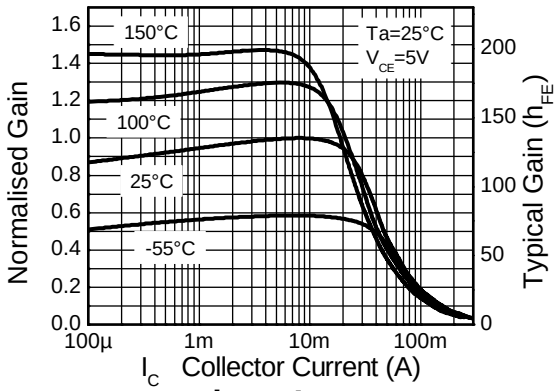
Typical Characteristics



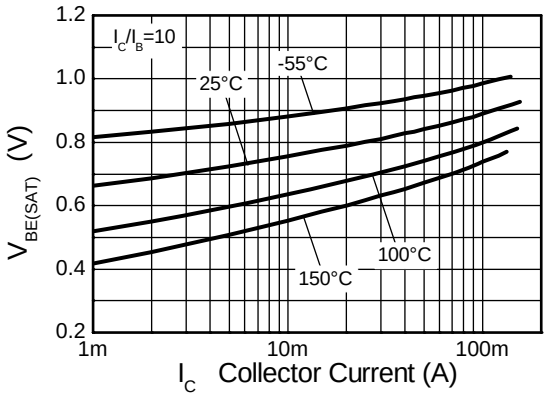
$V_{CE(SAT)}$ v I_C



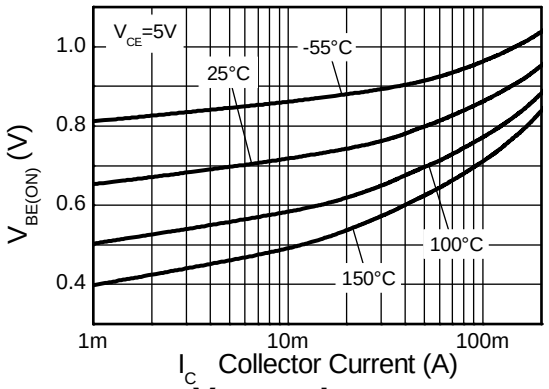
$V_{CE(SAT)}$ v I_C



h_{FE} v I_C

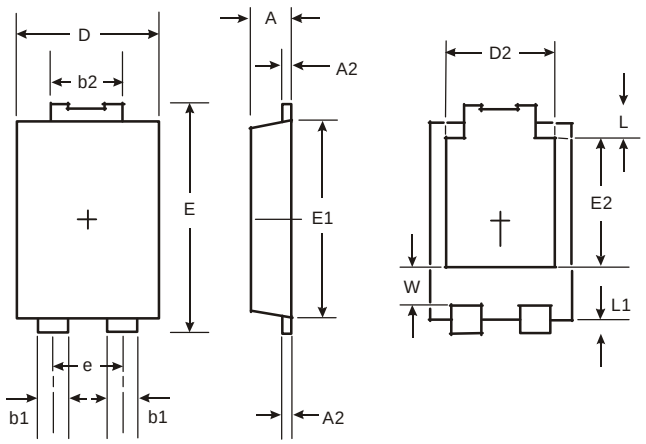


$V_{BE(SAT)}$ v I_C



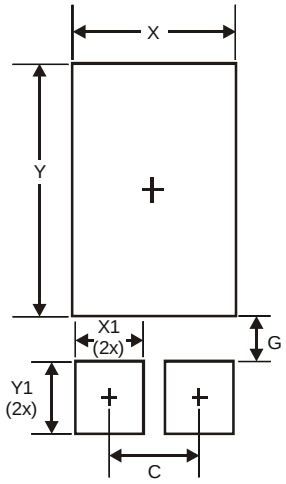
$V_{BE(ON)}$ v I_C

Package Outline Dimensions



PowerDI®5		
Dim	**Min**	**Max**
A	1.05	1.15
A2	0.33	0.43
b1	0.80	0.99
b2	1.70	1.88
D	3.90	4.05
D2	3.054 Typ	
E	6.40	6.60
e	1.84 Typ	
E1	5.30	5.45
E2	3.549 Typ	
L	0.75	0.95
L1	0.50	0.65
W	1.10	1.41
All Dimensions in mm		

Suggested Pad Layout



Dimensions	Value (in mm)
C	1.840
G	0.852
X	3.360
X1	1.390
Y	4.860
Y1	1.400

PowerDI is a registered trademark of Diodes Incorporated.

IMPORTANT NOTICE

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

LIFE SUPPORT

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

A. Life support devices or systems are devices or systems which:

1. are intended to implant into the body, or

2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

www.diodes.com

PowerDI is a registered trademark of Diodes Incorporated.