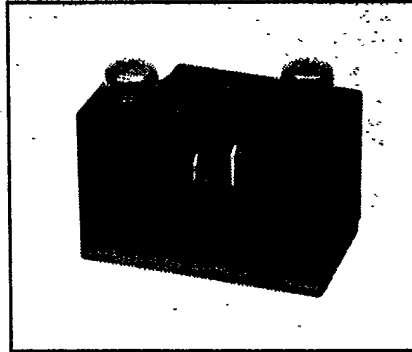
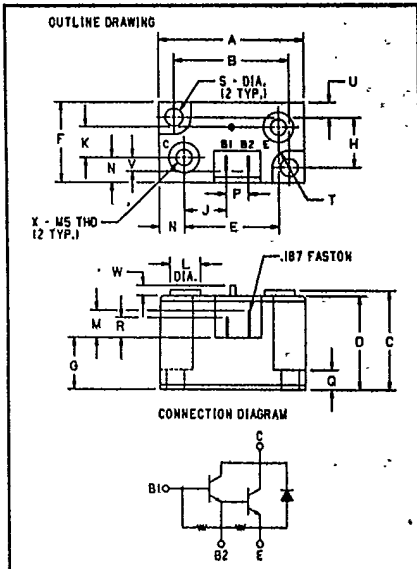


**POWEREX****D67DE**

Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272

## Fast Switching Single Darlington Transistor Module 100 Amperes 500-600-700 Volts



**D67DE**  
Fast Switching Single Darlington  
Transistor Module  
100 Amperes/500-600-700 Volts

### 500-600-700 Volt D67DE Outline Drawing

Dimension	Inches	Millimeters
A	1.800 ± 0.15	45.7 ± 0.4
B	1.420 ± 0.10	36 ± 0.25
C	1.242 ± 0.030	31.55 ± 0.8
D	1.173 ± 0.025	29.8 ± 0.6
E	1.170	29.7
F	1.000 ± 0.015	25.4 ± 0.4
G	.650 ± 0.035	16.5 ± 0.9
H	.620 ± 0.010	15.7 ± 0.25
J	.518	13.2
K	.380 ± 0.010	9.6 ± 0.25
L	.375 Dia.	9.5 Dia.
M	.335	8.5
N	.310 ± 0.010	7.9 ± 0.25
P	.275 ± 0.015	7 ± 0.4
Q	.250 ± 0.015	6.4 ± 0.4
R	.245	6.2
S	.22 Dia.	5.6 Dia.
T	.21 R	5.3 R
U	.180	4.6
V	.170	4.3
W	.120	3.1
X	M5 Metric	M5

### Description

Powerex Fast Switching Single Darlington Transistor Modules are designed for use in switching applications. The modules are isolated consisting of one Darlington Transistor with a monolithic reverse parallel connected free-wheel diode.

### Features:

- Isolated Mounting
- High Gain ( $h_{FE}$ )
- Base 1 and 2 Accessible

### Applications:

- UPS Inverters
- DC Motor Control
- Switching Power Supplies
- AC Motor Control

### Ordering Information

Example: Select the complete six digit module part number you desire from the table - i.e. D67DE7 is a 700 Volt, 100 Ampere Fast Switching Single Darlington Module.

Type	V <sub>CEV</sub> Volts (x100)	Current Rating Amperes (100)
D67DE	5	100
D67DE	6	100
D67DE	7	100



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### D67DE

Fast Switching Single Darlington Transistor Module  
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### Maximum Ratings $T_J = 25^\circ\text{C}$ unless otherwise specified

	Symbol	D67DE	Units
Junction Temperature	$T_J$	-40 to 150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-40 to 150	$^\circ\text{C}$
Collector-Emitter Sustaining Voltage D67DE5	$V_{CE(SUS)}$	400	Volts
Collector-Emitter Voltage $V_{BE} = -1.5\text{V}$ D67DE5	$V_{CEV}$	500	Volts
Collector-Emitter Sustaining Voltage D67DE6	$V_{CE(SUS)}$	450	Volts
Collector-Emitter Voltage $V_{BE} = -1.5\text{V}$ D67DE6	$V_{CEV}$	600	Volts
Collector-Emitter Sustaining Voltage D67DE7	$V_{CE(SUS)}$	500	Volts
Collector-Emitter Voltage $V_{BE} = -1.5\text{V}$ D67DE7	$V_{CEV}$	700	Volts
Emitter-Base Voltage	$V_{EBO}$	8	Volts
Continuous Collector Current	$I_C$	100	Amperes
Peak (Repetitive) Collector Current	$I_{CM}$	150	Amperes
Peak (Non-repetitive) Collector Current	$I_{CSM}$	250	Amperes
Diode Forward Current	$I_{FM}$	100	Amperes
Continuous Base Current	$I_B$	10	Amperes
Peak (Non-repetitive) Base Current	$I_{BM}$	20	Amperes
Power Dissipation	$P_T$	312.5	Watts
Max. Mounting Torque (M5) Terminal Screws	—	28	in.-lb.
Max. Mounting Torque (M5) Mounting Screws	—	25	in.-lb.
V isolation	$V_{RMS}$	2500	Volts

### Electrical and Mechanical Characteristics $T_J = 25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	D67DE Typ.	Max.	Units
Collector Cutoff Current	$I_{CEV}$	$V_{CE} = V_{CEV}$ (rated), $V_{BE} = -1.5\text{V}$	—	—	1	mA
Collector Cutoff Current	$I_{CEV}$	$V_{CE} = V_{CEV}$ (rated), $V_{BE} = -1.5\text{V}$ $T_J = 150^\circ\text{C}$	—	—	2.5	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 3.5\text{V}$	—	—	500	mA
DC Current Gain	$h_{FE}$	$I_C = 150\text{A}$ , $V_{CE} = 5.0\text{V}$ $I_C = 100\text{A}$ , $V_{CE} = 5.0\text{V}$ $I_C = 40\text{A}$ , $V_{CE} = 5.0\text{V}$	25 50 100	90 200 275	— — —	— — —
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = 150\text{A}$ , $I_B = 10.0\text{A}$ $I_C = 100\text{A}$ , $I_B = 8.0\text{A}$ $I_C = 40\text{A}$ , $I_B = 4.0\text{A}$	— — —	1.9 1.4 1.0	3.0 2.0 1.5	V V V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C = 150\text{A}$ , $I_B = 10.0\text{A}$ $I_C = 100\text{A}$ , $I_B = 8.0\text{A}$	— —	2.75 2.3	3.5 3.0	V V
Delay Time*	$t_d$	$V_{CC} = 250\text{V}$	—	0.1	0.5	$\mu\text{s}$
Rise Time*	$t_{on}$	$I_C = 100\text{A}$	—	0.45	1.0	$\mu\text{s}$
Storage Time*	$t_s$	$I_{B1} = 5\text{A}$ , $-I_{B2} = 10.0\text{A}$	—	3.2	5.0	$\mu\text{s}$
Fall Time*	$t_f$	$t_p = 50 \mu\text{sec}$	—	1.1	3.0	$\mu\text{s}$
Diode Forward Voltage	$V_{FM}$	$I_{FM} = 100\text{A}$ $I_{FM} = 100\text{A}$ , $T_J = 150^\circ\text{C}$	— —	1.9 1.75	3.25 3.00	V V
Reverse Recovery Time	$t_{rr}$	$I_{FM} = 100\text{A}$ , $di/dt = 25\text{A}/\mu\text{sec}$ $R_{B1E} = .25\Omega$	—	4.5	10.0	$\mu\text{s}$
Forward Turn-On Time	$t_{ON}$	$I_{FM} = 100\text{A}$ , $di/dt = 100\text{A}/\mu\text{sec}$	—	1.7	2.5	$\mu\text{s}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Transistor Part	—	—	.4	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Diode Part	—	—	.4	$^\circ\text{C}/\text{W}$

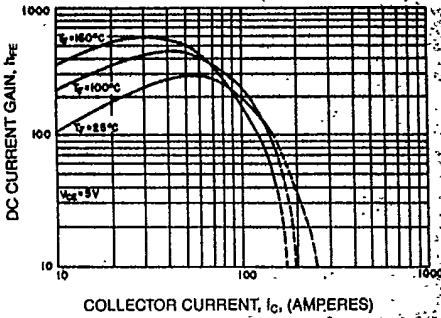
\*Resistive Load



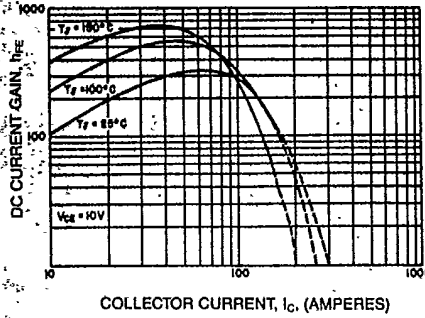
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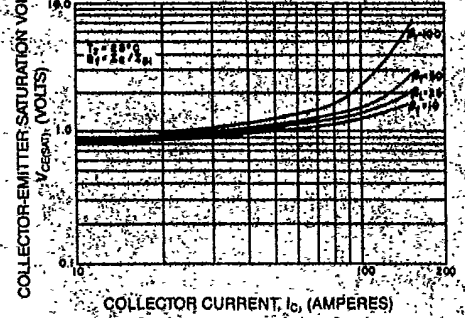
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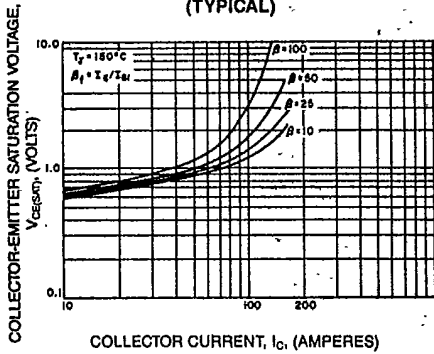
DC CURRENT GAIN (TYPICAL)



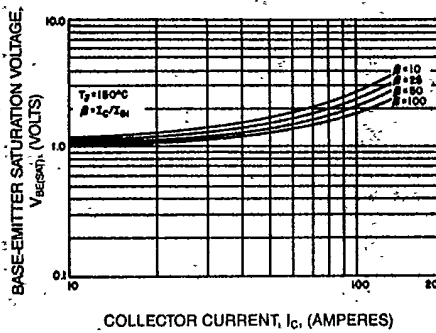
SATURATION VOLTAGE (TYPICAL)



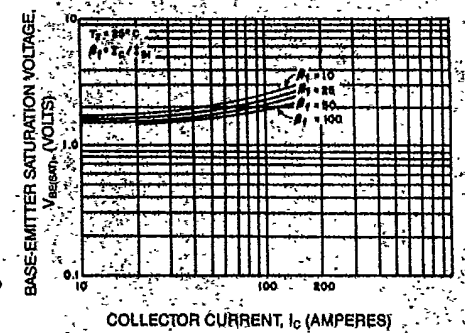
SATURATION VOLTAGE (TYPICAL)



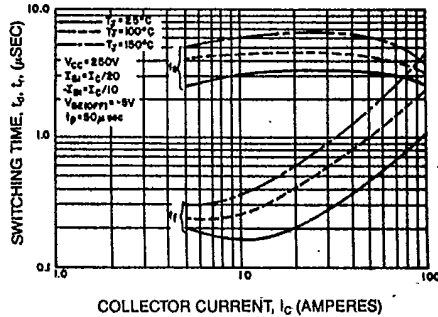
SATURATION VOLTAGE (TYPICAL)



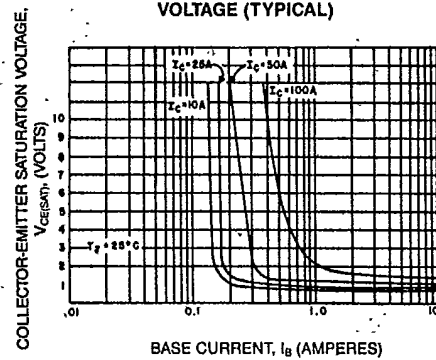
SATURATION VOLTAGE (TYPICAL)



SWITCHING CHARACTERISTICS (TYPICAL)



COLLECTOR-EMITTER SATURATION VOLTAGE (TYPICAL)



SWITCHING TIME VS. BASE CURRENT (TYPICAL)

