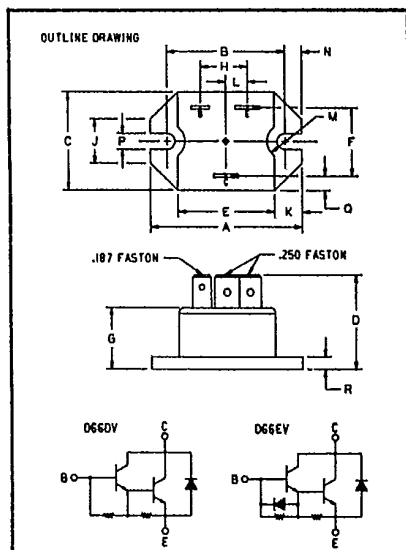
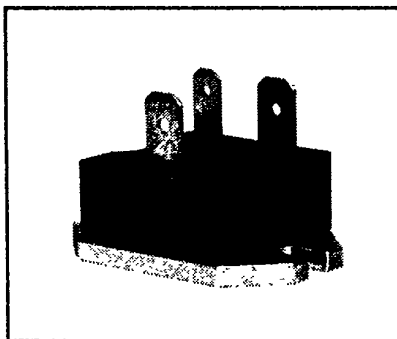


POWEREX**D66DV
D66EV**

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

**Fast Switching
Single Darlington
Transistor Module****50 Amperes****500-600-700 Volts****500-600-700 Volts D66DV, D66EV
Outline Drawing**

Dimension	Inches	Millimeters
A	1.52	38.6
B	1.186 ± .006	30 ± 0.15
C	1.000 ± .015	25.4 ± 0.4
D	.97	24.6
E	.96	24.4
F	.694 ± .010	17.6 ± 0.25
G	.625 ± .020	15.9 ± 0.5
H	.474 ± .010	12 ± 0.25
J	.450	11.4
K	.275	7
L	.220 ± .010	5.6 ± 0.25
M	.180 R	4.6 R
N	.167 ± .010	4.2 ± 0.25
P	.160 ± .010	4.1 ± 0.25
Q	.15	3.8
R	.126 ± .006	3.2 ± 0.15

**D66DV****D66EV****Fast Switching Single Darlington
Transistor Module****50 Amperes/500-600-700 Volts****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})
- ☐ Quick Connect Terminals
- ☐ Base Emitter Speed-up Diode (D66EV)

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. D66EV7 is a 700 Volt, 50 Ampere Fast Switching Single Darlington Module without speed-up diode and D66DV7 is a 700 Volt, 50 Ampere Fast Switching Darlington Module with speed-up diode.

Type	V _{CEV} Volts (×100)	Current Rating Amperes (50)
D66DV/D66EV	5	50
D66DV/D66EV	6	50
D66DV/D66EV	7	50



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D66DV

D66EV

Fast Switching Single Darlington Transistor Module

50 Amperes/500-600-700 Volts

Maximum Ratings $T_J = 25^\circ\text{C}$ unless otherwise specified

	Symbol	D66DV/D66EV	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 D66DV5/EV5	$V_{CEO(SUS)}$	400	Volts
Collector-Emitter Voltage $V_{BE} = -1.5\text{V}$ D66DV5/EV5	V_{CEV}	500	Volts
Collector-Emitter Sustaining Voltage D66DV6/EV6	$V_{CEO(SUS)}$	450	Volts
Collector-Emitter Voltage $V_{BE} = -1.5\text{V}$ D66DV6/EV6	V_{CEV}	600	Volts
Collector-Emitter Sustaining Voltage D66DV7/EV7	$V_{CEO(SUS)}$	500	Volts
Collector-Emitter Voltage $V_{BE} = -1.5\text{V}$ D66DV7/EV7	V_{CEV}	700	Volts
Emitter-Base Voltage D66DV	V_{EBO}	8	Volts
Emitter-Base Voltage D66EV	V_{EBO}	5	Volts
Continuous Collector Current	I_C	50	Amperes
Peak (Repetitive) Collector Current	I_{CM}	75	Amperes
Peak (Non-Repetitive) Collector Current	I_{CSM}	125	Amperes
Diode Forward Current	I_{FM}	50	Amperes
Continuous Base Current	I_B	10	Amperes
Peak (Non-Repetitive) Base Current	I_{BM}	20	Amperes
Power Dissipation	P_T	125	Watts
Max. Mounting Torque (M3) Mounting Screws	—	8	in.-lb.
V isolation	V_{RMS}	2500	Volts



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D66DV

D66EV

Fast Switching Single Darlington Transistor Module

50 Amperes/500-600-700 Volts

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

Characteristics	Symbol	Test Conditions	Min.	D66DV, D66EV Typ.	Max.	Units
Collector Cutoff Current	I_{CEV}	$V_{CE} = V_{CEV}(\text{rated}), V_{BE} = -1.5\text{V}$	—	—	1	mA
Collector Cutoff Current	I_{CEV}	$V_{CE} = V_{CEV}(\text{rated}), V_{BE} = -1.5\text{V}$ $T_C = 150^\circ\text{C}$	—	—	2.5	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 4.5\text{V}$ $V_{EB} = 1.5\text{V}$	—	—	350	mA
DC Current Gain	h_{FE}	$I_C = 75\text{A}, V_{CE} = 5.0\text{V}$ $I_C = 50\text{A}, V_{CE} = 5.0\text{V}$ $I_C = 20\text{A}, V_{CE} = 5.0\text{V}$	25 50 100	60 135 250	—	—
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = 75\text{A}, I_B = 5.0\text{A}$ $I_C = 50\text{A}, I_B = 4.0\text{A}$ $I_C = 20\text{A}, I_B = 2.0\text{A}$	—	2.2 1.7 1.15	3.0 2.0 1.5	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C = 75\text{A}, I_B = 5.0\text{A}$ $I_C = 50\text{A}, I_B = 4.0\text{A}$ $I_C = 20\text{A}, I_B = 2.0\text{A}$	—	2.8 2.45 1.95	3.5 3.0 2.5	V
Delay Time*	t_d	$V_{CC} = 250\text{V}, I_C = 50\text{A}$ $I_{B1} = 2.5\text{A}, -I_{B2} = 5\text{A}$	—	0.09	0.5	μs
Rise Time*	t_r		—	0.5	1.0	μs
Storage Time*	t_s		—	2.55 2.0	5.0 3.0	μs
Fall Time*	t_f	$t_p = 50 \mu\text{sec}$	—	1.4 .64	3.0 1.0	μs
Diode Forward Voltage	V_{FM}	$I_{FM} = 25\text{A}$ $I_{FM} = 50\text{A}$ $I_{FM} = 50\text{A}, T_J = 150^\circ\text{C}$	—	1.95 2.6 2.3	3.20 3.80 3.50	V
Reverse Recovery Time	t_{rr}	$I_{FM} = 50\text{A}, di/dt = 25\text{A}/\mu\text{sec}$ $R_{BIE} = .25\Omega$	—	3.85	10.0	μs
Forward Turn-On Time	t_{ON}	$I_{FM} = 50\text{A}, di/dt = 100\text{A}/\mu\text{sec}$	—	0.75	1.5	μs
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Transistor Part	—	—	1.0	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Diode Part	—	—	1.0	$^\circ\text{C}/\text{W}$

* Resistive Load.



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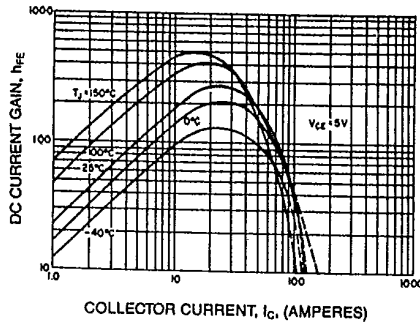
D66DV

D66EV

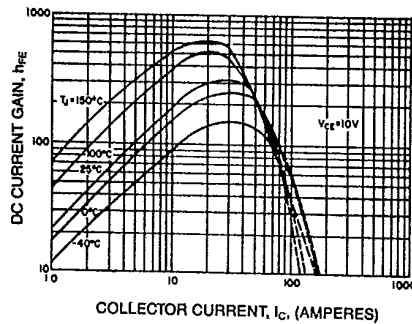
Fast Switching Single Darlington Transistor Module

50 Amperes/500-600-700 Volts

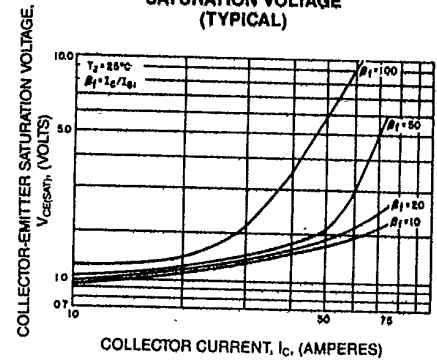
DC CURRENT GAIN
(TYPICAL)



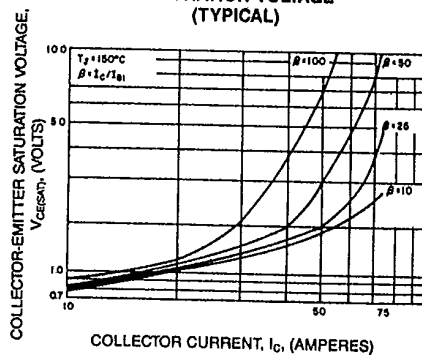
DC CURRENT GAIN
(TYPICAL)



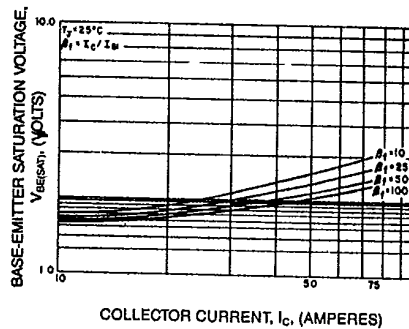
SATURATION VOLTAGE
(TYPICAL)



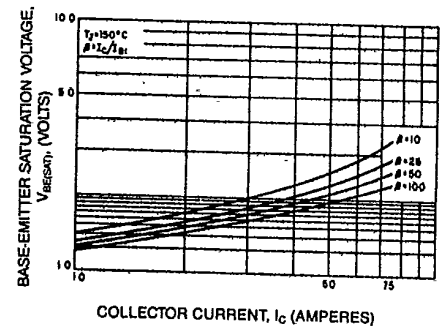
SATURATION VOLTAGE
(TYPICAL)



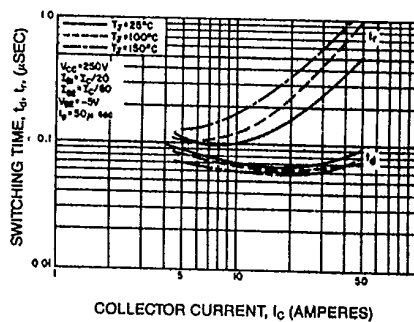
SATURATION VOLTAGE
(TYPICAL)



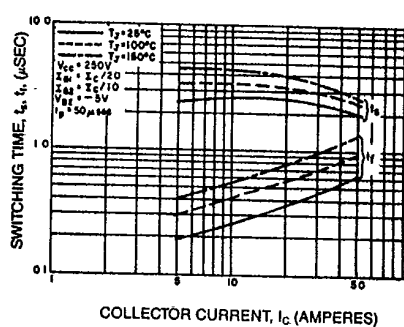
SATURATION VOLTAGE
(TYPICAL)



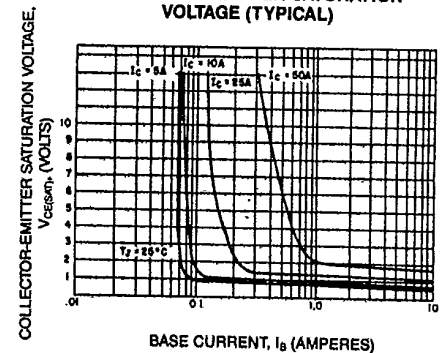
SWITCHING CHARACTERISTICS
(TYPICAL)



SWITCHING CHARACTERISTICS
(TYPICAL)



COLLECTOR-EMITTER SATURATION
VOLTAGE (TYPICAL)





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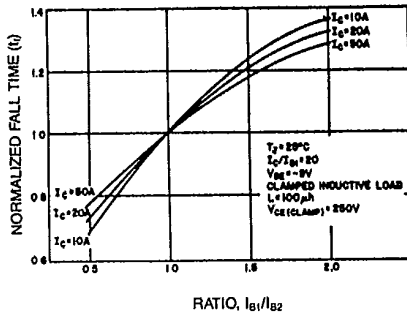
D66DV

D66EV

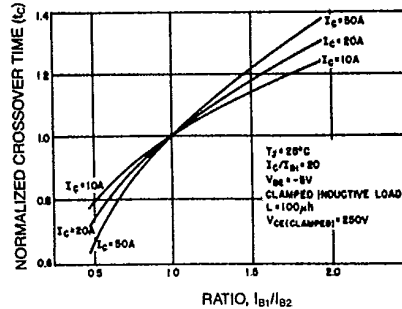
Fast Switching Single Darlington Transistor Module

50 Amperes/500-600-700 Volts

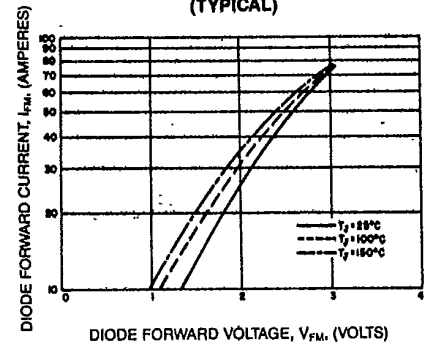
SWITCHING TIME VS. BASE CURRENT
(TYPICAL)



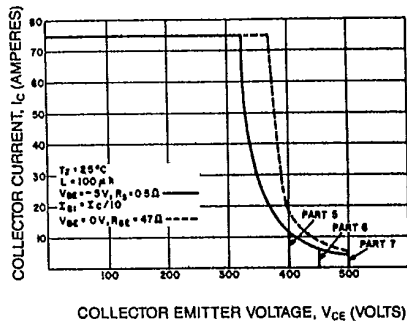
SWITCHING TIME VS. BASE CURRENT
(TYPICAL)



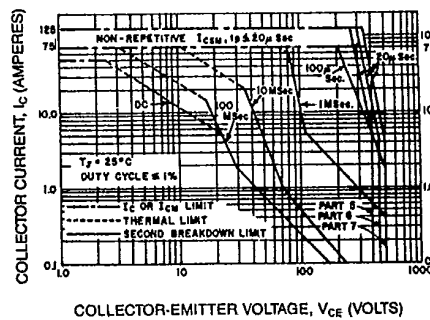
DIODE CHARACTERISTICS
(TYPICAL)



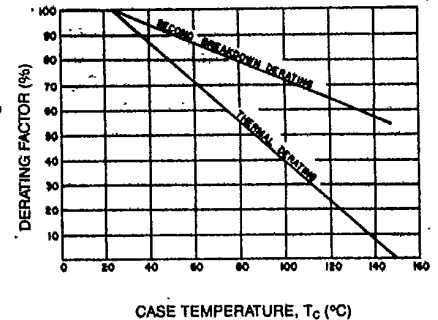
REVERSE BIAS SAFE OPERATING AREA
(R.B.S.O.A.)



FORWARD BIAS SAFE OPERATING AREA
(S.O.A.)



DERATING FACTOR OF SAFE
OPERATING AREA (S.O.A.)



TRANSIENT THERMAL IMPEDANCE
CHARACTERISTICS (TRANSISTOR)

