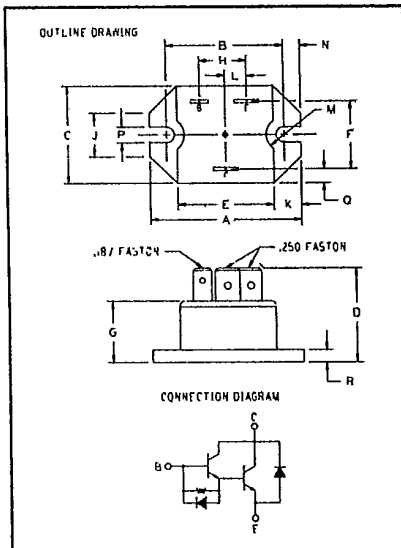


**POWEREX****D66GV**

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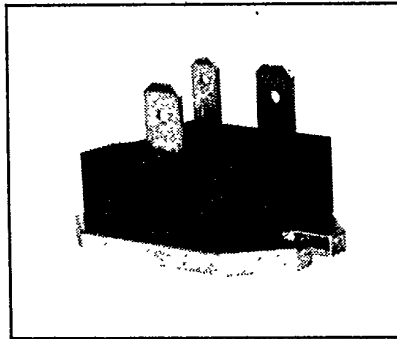
## Fast Switching Single Darlington Transistor Module

50 Amperes  
500-600-700 Volts



500-600-700 Volt D66GV  
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



**D66GV**  
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 discrete reverse parallel connected high speed free-wheel diode.

### Features:

- Isolated Mounting
- High Gain ( $h_{fe}$ )
- Quick Connect Terminals
- Base Emitter Speed-up Diode

### 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. D66GV7 is a 700 Volt, 50 Ampere Fast Switching Single Darlington Module with speed-up diode and discrete fast recovery free wheel diode.

Type	V <sub>CEV</sub> Volts (x100)	Current Rating Amperes (50)
D66GV	5	50
D66GV	6	50
D66GV	7	50



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**D66GV**

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

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

	Symbol	D66GV	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 D66GV5	$V_{CEO(SUS)}$	400	Volts
Collector-Emitter Voltage $V_{BE} = -1.5\text{V}$ D66GV5	$V_{CEV}$	500	Volts
Collector-Emitter Sustaining Voltage D66GV6	$V_{CEO(SUS)}$	450	Volts
Collector-Emitter Voltage $V_{BE} = -1.5\text{V}$ D66GV6	$V_{CEV}$	600	Volts
Collector-Emitter Sustaining Voltage D66GV7	$V_{CEO(SUS)}$	500	Volts
Collector-Emitter Voltage $V_{BE} = -1.5\text{V}$ D66GV7	$V_{CEV}$	700	Volts
Emitter-Base Voltage	$V_{EBO}$	7	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

# POWEREX

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**D66GV**

**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.	D66GV Typ.	Max.	Units
Collector Cutoff Current	$I_{CEV}$	$V_{CE} = V_{CEV}(\text{rated}), V_{BE} = -1.5V$	—	—	1	mA
Collector Cutoff Current	$I_{CEV}$	$V_{CE} = V_{CEV}(\text{rated}), V_{BE} = -1.5V$ $T_C = 150^\circ\text{C}$	—	—	2.5	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5V$	—	—	10	mA
DC Current Gain	$h_{FE}$	$I_C = 75A, V_{CE} = 5.0V$	25	150	—	—
		$I_C = 50A, V_{CE} = 5.0V$	50	300	—	—
		$I_C = 20A, V_{CE} = 5.0V$	100	350	—	—
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = 75A, I_B = 5.0A$	—	1.6	3.0	V
		$I_C = 50A, I_B = 4.0A$	—	1.3	2.0	V
		$I_C = 20A, I_B = 2.0A$	—	1.0	1.5	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C = 75A, I_B = 5.0A$	—	2.2	3.5	V
		$I_C = 50A, I_B = 4.0A$	—	2.0	3.0	V
		$I_C = 20A, I_B = 2.0A$	—	—	2.5	V
Delay Time*	$t_d$	$V_{CC} = 250V$	—	0.1	0.5	$\mu\text{s}$
Rise Time*	$t_r$	$I_C = 50A$	—	0.65	1.0	$\mu\text{s}$
Storage Time*	$t_s$	$I_{B1} = 2.5A, -I_{B2} = 5A$	—	2.5	3.0	$\mu\text{s}$
Fall Time*	$t_f$	$t_P = 50 \mu\text{sec}$	—	0.6	0.75	$\mu\text{s}$
Diode Forward Voltage	$V_{FM}$	$I_{FM} = 25A$	—	1.3	2.0	V
		$I_{FM} = 25A, T_j = 150^\circ\text{C}$	—	1.3	2.50	V
Reverse Recovery Time	$t_{rr}$	$I_{FM} = 50A, di/dt = 100A/\mu\text{sec}$ $V_{BE} = -1.5V$	—	0.5	1.0	$\mu\text{s}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Transistor Part	—	—	1.0	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Diode Part	—	—	2.5	$^\circ\text{C/W}$

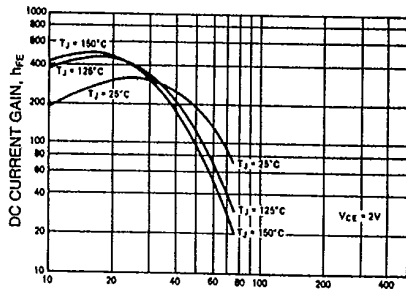
\*Resistive Load



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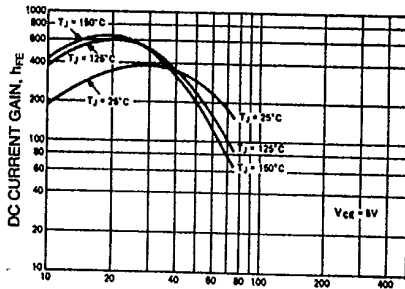
D66GV
Fast Switching Single Darlington Transistor Module
50 Amperes/500-600-700 Volts

DC CURRENT GAIN (TYPICAL)



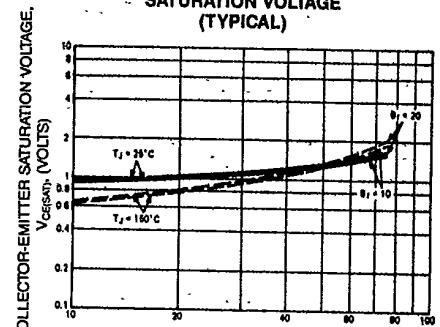
COLLECTOR CURRENT, Ic, (AMPERES)

DC CURRENT GAIN (TYPICAL)



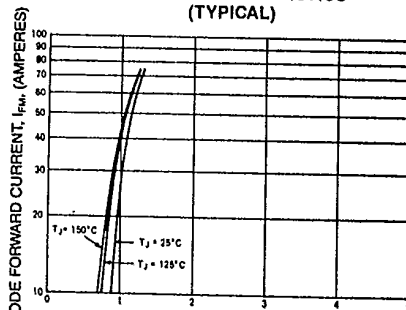
COLLECTOR CURRENT, Ic, (AMPERES)

SATURATION VOLTAGE (TYPICAL)



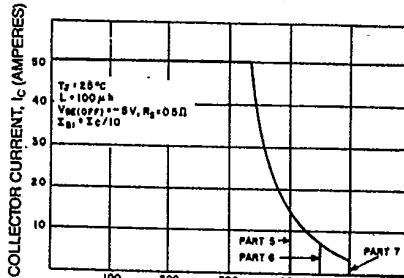
COLLECTOR CURRENT, Ic, (AMPERES)

DIODE CHARACTERISTICS (TYPICAL)



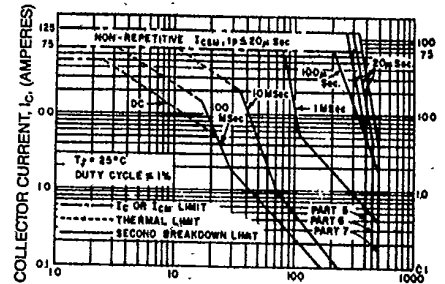
DIODE FORWARD VOLTAGE, VFM, (VOLTS)

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



COLLECTOR EMITTER VOLTAGE, Vce (VOLTS)

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



COLLECTOR-EMITTER VOLTAGE, Vce (VOLTS)

Switching Time Test Circuit

