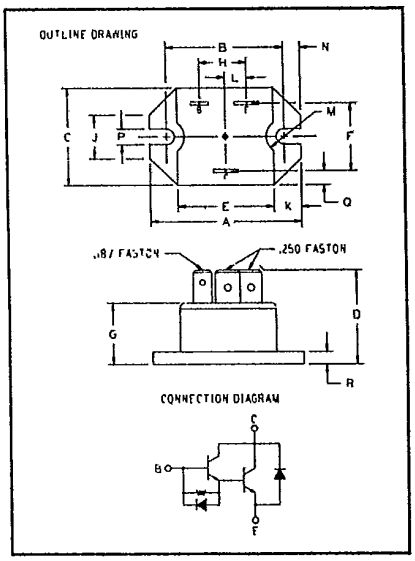
POWEREX

D66GV

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

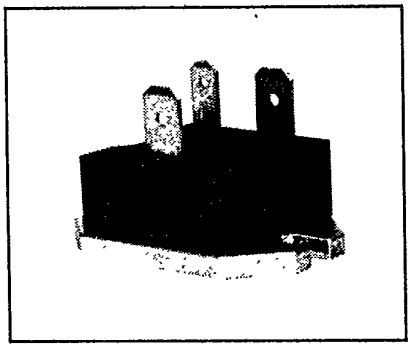
Fast Switching Single Darlington Transistor Module

50 Amperes
500-600-700 Volts



500-600-700 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



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Fast Switching Single Darlington Transistor Module
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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_{CEV} Volts (×100)	Current Rating Amperes (50)
D66GV	5	50
D66GV	6	50
D66GV	7	50

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Maximum Ratings T_J = 25°C unless otherwise specified

	Symbol	D66GV	Units
Junction Temperature	T_J	−40 to 150	°C
Storage Temperature	T_{STG}	−40 to 150	°C
Collector-Emitter Sustaining Voltage D66GV5	$V_{CEO(SUS)}$	400	Volts
Collector-Emitter Voltage V_{BE} = −1.5V D66GV5	V_{CEV}	500	Volts
Collector-Emitter Sustaining Voltage D66GV6	$V_{CEO(SUS)}$	450	Volts
Collector-Emitter Voltage V_{BE} = −1.5V D66GV6	V_{CEV}	600	Volts
Collector-Emitter Sustaining Voltage D66GV7	$V_{CEO(SUS)}$	500	Volts
Collector-Emitter Voltage V_{BE} = −1.5V 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

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Electrical and Mechanical Characteristics T_j=25°C unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	D66GV Typ.	Max.	Units
Collector Cutoff Current	I_{CEV}	$V_{CE}=V_{CEV}$ (rated), $V_{BE}=-1.5V$	—	—	1	mA
Collector Cutoff Current	I_{CEV}	$V_{CE}=V_{CEV}$ (rated), $V_{BE}=-1.5V$, T_C=150°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_C=2.0A	—	—	2.5	V
Delay Time*	t_d	V_{CC}=250V	—	0.1	0.5	μs
Rise Time*	t_r	I_C=50A	—	0.65	1.0	μs
Storage Time*	t_s	I_{B1}=2.5A, $-I_{B2}$=5A	—	2.5	3.0	μs
Fall Time*	t_f	t_P=50 μsec	—	0.6	0.75	μs
Diode Forward Voltage	V_{FM}	I_{FM}=25A	—	1.3	2.0	V
		I_{FM}=25A, T_j=150°C	—	1.3	2.50	V
Reverse Recovery Time	t_{rr}	I_{FM}=50A, di/dt=100A/μsec, $V_{BE}=-1.5V$	—	0.5	1.0	μs
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Transistor Part	—	—	1.0	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Diode Part	—	—	2.5	°C/W

*Resistive Load

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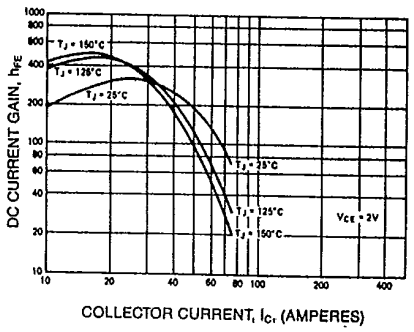
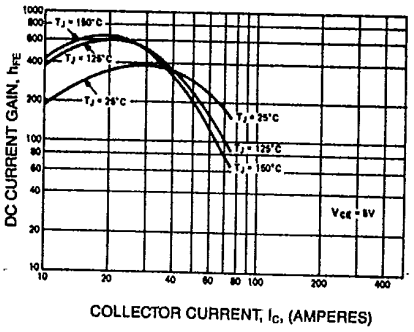
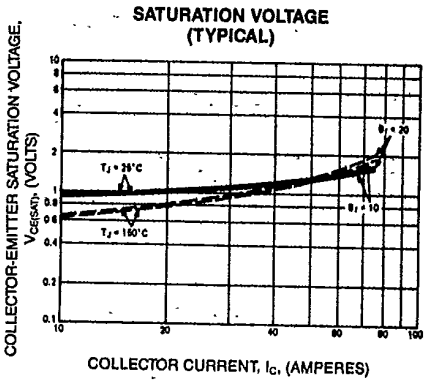
DC CURRENT GAIN (TYPICAL)



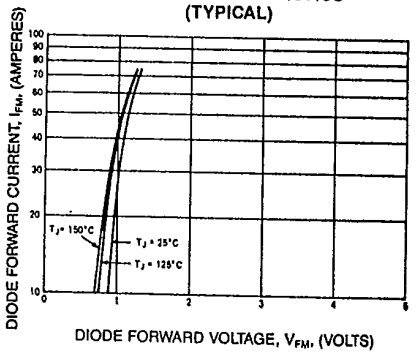
DC CURRENT GAIN (TYPICAL)



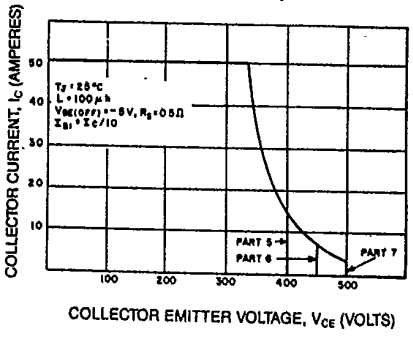
SATURATION VOLTAGE (TYPICAL)



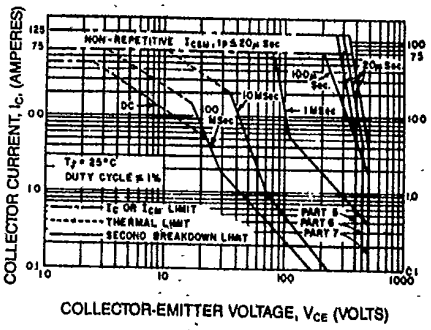
DIODE CHARACTERISTICS (TYPICAL)



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



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



Switching Time Test Circuit