



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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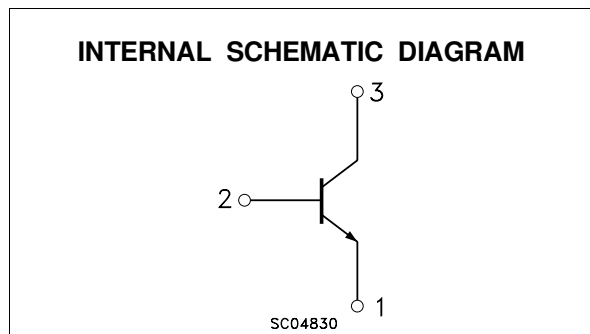
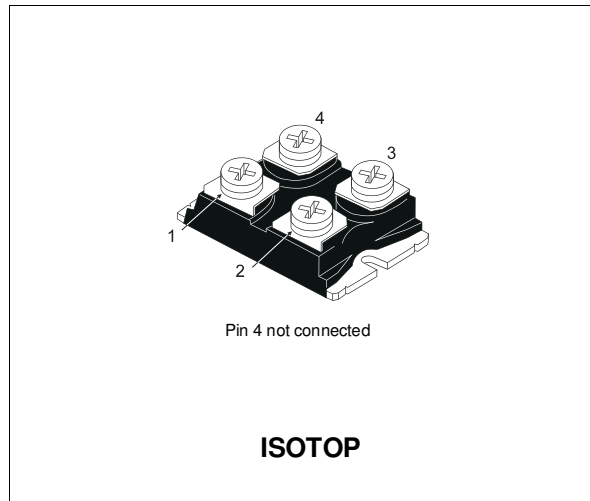


NPN TRANSISTOR POWER MODULE

- NPN TRANSISTOR
- HIGH CURRENT POWER BIPOLAR MODULE
- VERY LOW R_{th} JUNCTION CASE
- SPECIFIED ACCIDENTAL OVERLOAD AREAS
- FULLY INSULATED PACKAGE (U.L. COMPLIANT) FOR EASY MOUNTING
- LOW INTERNAL PARASITIC INDUCTANCE

APPLICATIONS:

- MOTOR CONTROL
- SMPS & UPS
- WELDING EQUIPMENT



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CEV}	Collector-Emitter Voltage ($V_{BE} = -5\text{ V}$)	200	V
$V_{CEO(sus)}$	Collector-Emitter Voltage ($I_B = 0$)	125	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	7	V
I_C	Collector Current	100	A
I_{CM}	Collector Peak Current ($t_p = 10\text{ ms}$)	150	A
I_B	Base Current	20	A
I_{BM}	Base Peak Current ($t_p = 10\text{ ms}$)	30	A
P_{tot}	Total Dissipation at $T_c = 25\text{ °C}$	250	W
V_{isol}	Insulation Withstand Voltage (RMS) from All Four Terminals to External Heatsink	2500	
T_{stg}	Storage Temperature	-55 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

BUT30V

THERMAL DATA

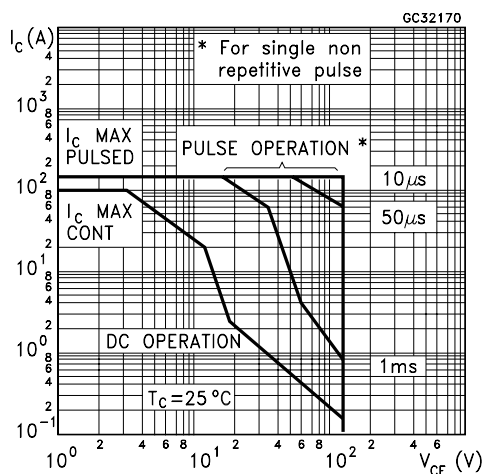
$R_{thj-case}$	Thermal Resistance Junction-case	Max	0.5	$^{\circ}\text{C}/\text{W}$
R_{thc-h}	Thermal Resistance Case-heatsink With Conductive Grease Applied	Max	0.05	$^{\circ}\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

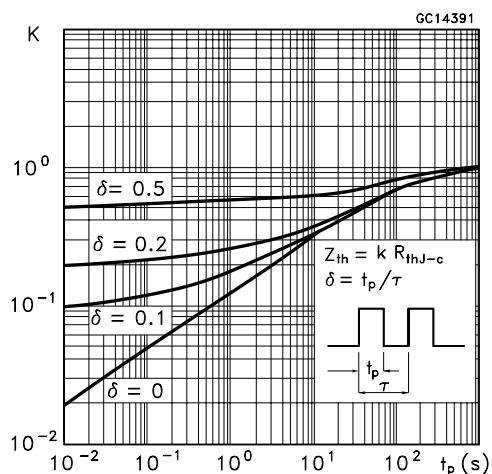
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CER}	Collector Cut-off Current ($R_{BE} = 5 \Omega$)	$V_{CE} = V_{CEV}$			1	mA
		$V_{CE} = V_{CEV} \quad T_c = 100^{\circ}\text{C}$			5	mA
I_{CEV}	Collector Cut-off Current ($V_{BE} = -5\text{V}$)	$V_{CE} = V_{CEV}$ $V_{CE} = V_{CEV} \quad T_c = 100^{\circ}\text{C}$			1 4	mA mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5 \text{ V}$			1	mA
$V_{CEO(sus)}^*$	Collector-Emitter Sustaining Voltage ($I_B = 0$)	$I_C = 0.2 \text{ A} \quad L = 25 \text{ mH}$ $V_{clamp} = 125 \text{ V}$	125			V
h_{FE}^*	DC Current Gain	$I_C = 100 \text{ A} \quad V_{CE} = 5$		27		
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = 50 \text{ A} \quad I_B = 2.5 \text{ A}$		0.45	0.9	V
		$I_C = 50 \text{ A} \quad I_B = 2.5 \text{ A} \quad T_c = 100^{\circ}\text{C}$		0.55	1.2	V
		$I_C = 100 \text{ A} \quad I_B = 10 \text{ A}$		0.7	0.9	V
		$I_C = 100 \text{ A} \quad I_B = 10 \text{ A} \quad T_c = 100^{\circ}\text{C}$		0.9	1.5	V
$V_{BE(sat)}^*$	Base-Emitter Saturation Voltage	$I_C = 50 \text{ A} \quad I_B = 2.5 \text{ A}$		1.15	1.4	V
		$I_C = 50 \text{ A} \quad I_B = 2.5 \text{ A} \quad T_c = 100^{\circ}\text{C}$		1.1	1.4	V
		$I_C = 100 \text{ A} \quad I_B = 10 \text{ A}$		1.45	1.8	V
		$I_C = 100 \text{ A} \quad I_B = 10 \text{ A} \quad T_c = 100^{\circ}\text{C}$		1.55	1.9	V
di_c/dt	Rate of Rise of On-state Collector	$V_{CC} = 300 \text{ V} \quad R_C = 0 \quad t_p = 3 \mu\text{s}$ $I_{B1} = 15 \text{ A} \quad T_c = 100^{\circ}\text{C}$	270	350		A/ μs
$V_{CE(3 \mu\text{s})}$	Collector-Emitter Dynamic Voltage	$V_{CC} = 300 \text{ V} \quad R_C = 1 \Omega$ $I_{B1} = 15 \text{ A} \quad T_c = 100^{\circ}\text{C}$		2.7	3.5	V
$V_{CE(5 \mu\text{s})}$	Collector-Emitter Dynamic Voltage	$V_{CC} = 300 \text{ V} \quad R_C = 1 \Omega$ $I_{B1} = 15 \text{ A} \quad T_c = 100^{\circ}\text{C}$		2	2.5	V
t_s t_f t_c	Storage Time	$I_C = 100 \text{ A} \quad V_{CC} = 90 \text{ V}$		1	2	μs
	Fall Time	$V_{BB} = -5 \text{ V} \quad R_{BB} = 0.47 \Omega$		0.1	0.2	μs
	Cross-over Time	$V_{clamp} = 125 \text{ V} \quad I_{B1} = 10 \text{ A}$ $L = 45 \mu\text{H} \quad T_c = 100^{\circ}\text{C}$		0.2	0.35	μs
V_{CEW}	Maximum Collector Emitter Voltage Without Snubber	$I_{C\text{Woff}} = 150 \text{ A} \quad I_{B1} = 10 \text{ A}$ $V_{BB} = -5 \text{ V} \quad V_{CC} = 90 \text{ V}$ $L = 30 \mu\text{H} \quad R_{BB} = 0.5 \Omega$ $T_c = 125^{\circ}\text{C}$	125			V

* Pulsed: Pulse duration = 300 μs , duty cycle 1.5 %

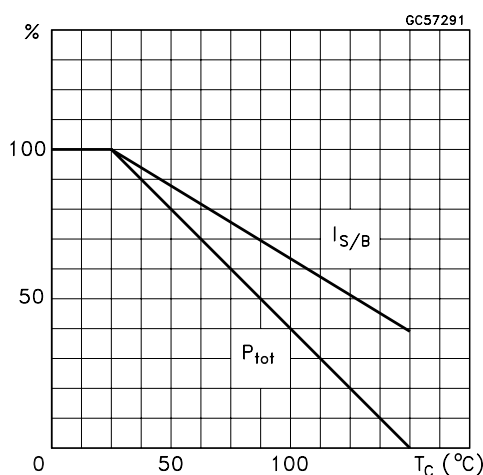
Safe Operating Areas



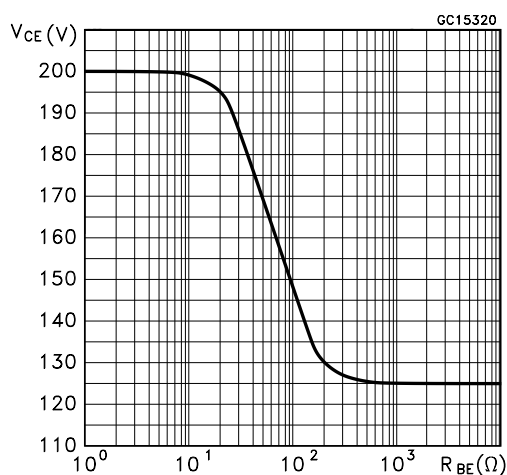
Thermal Impedance



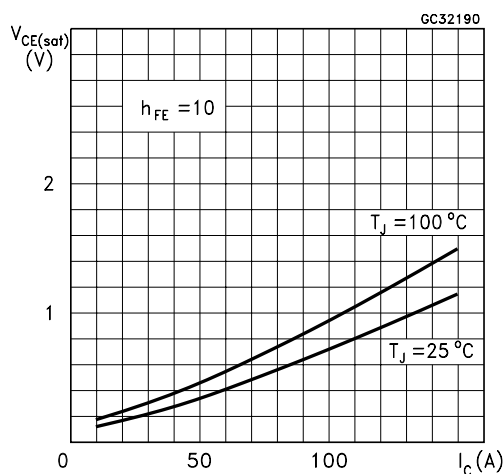
Derating Curve



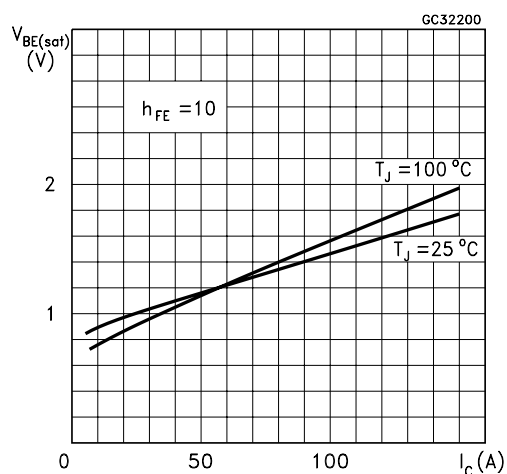
Collector-emitter Voltage Versus Base Emitter Resistance



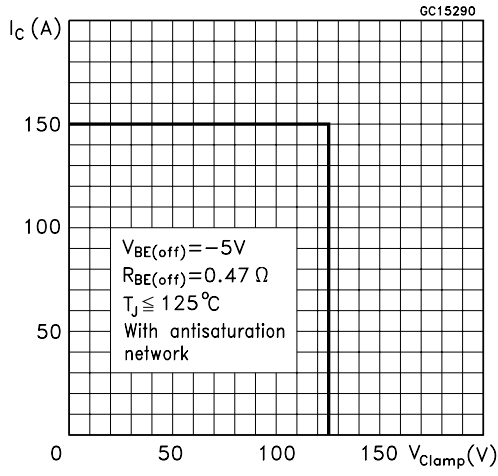
Collector Emitter Saturation Voltage



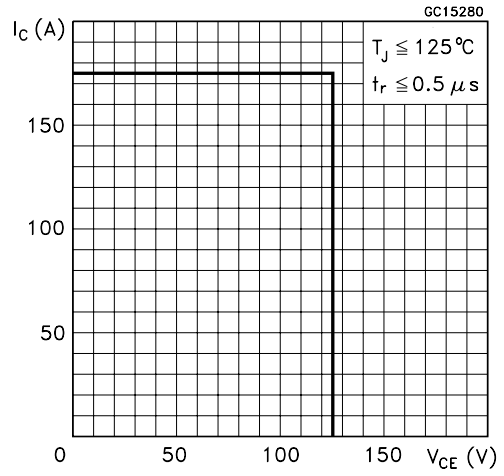
Base-Emitter Saturation Voltage



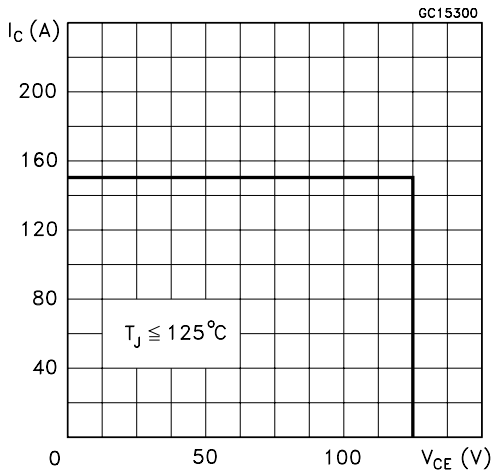
Reverse Biased SOA



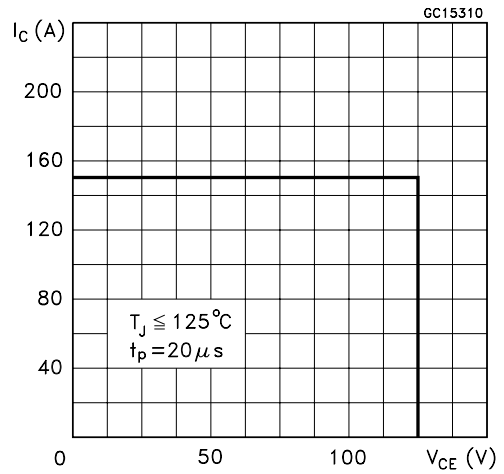
Forward Biased SOA



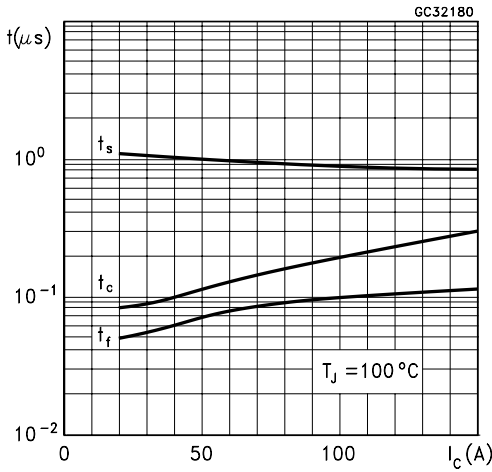
Reverse Biased AOA



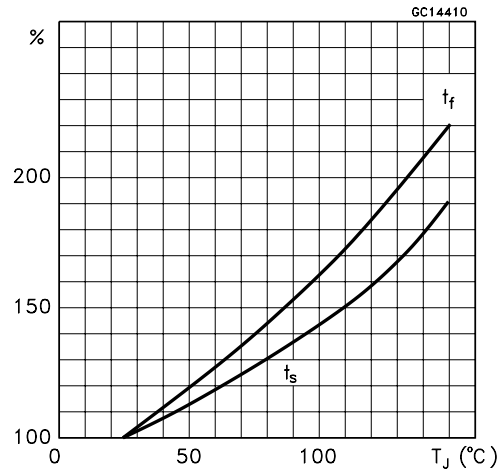
Forward Biased AOA



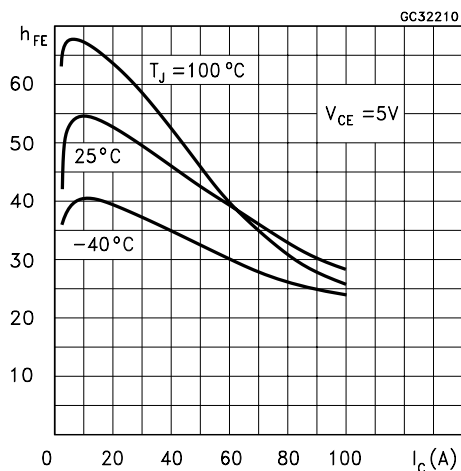
Switching Times Inductive Load



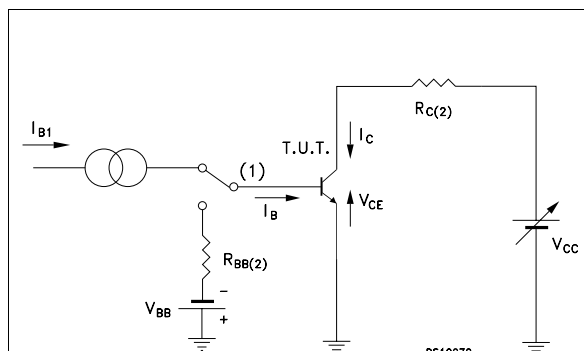
Switching Times Inductive Load Versus Temperature



Dc Current Gain

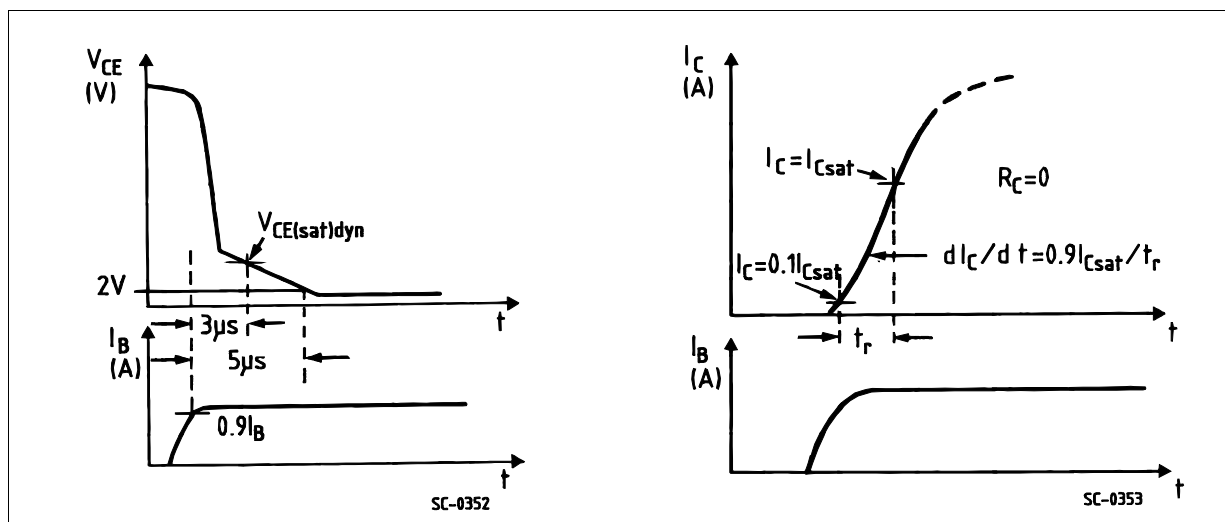


Turn-on Switching Test Circuit

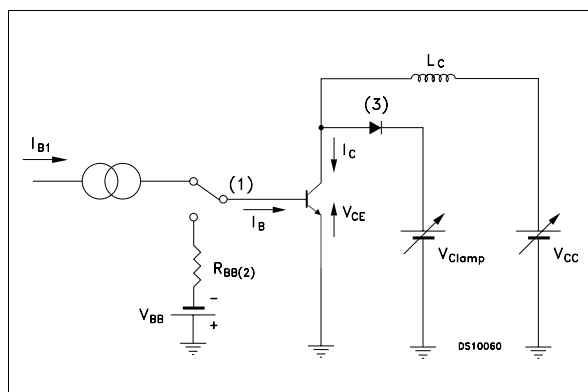


(1) Fast electronic switch (2) Non-inductive load

Turn-on Switching Waveforms

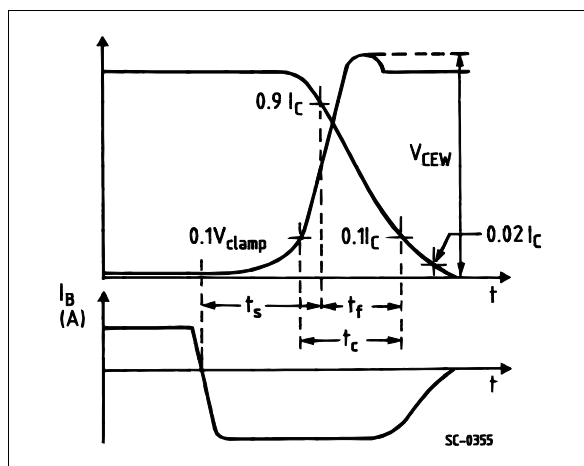


Turn-off Switching Test Circuit



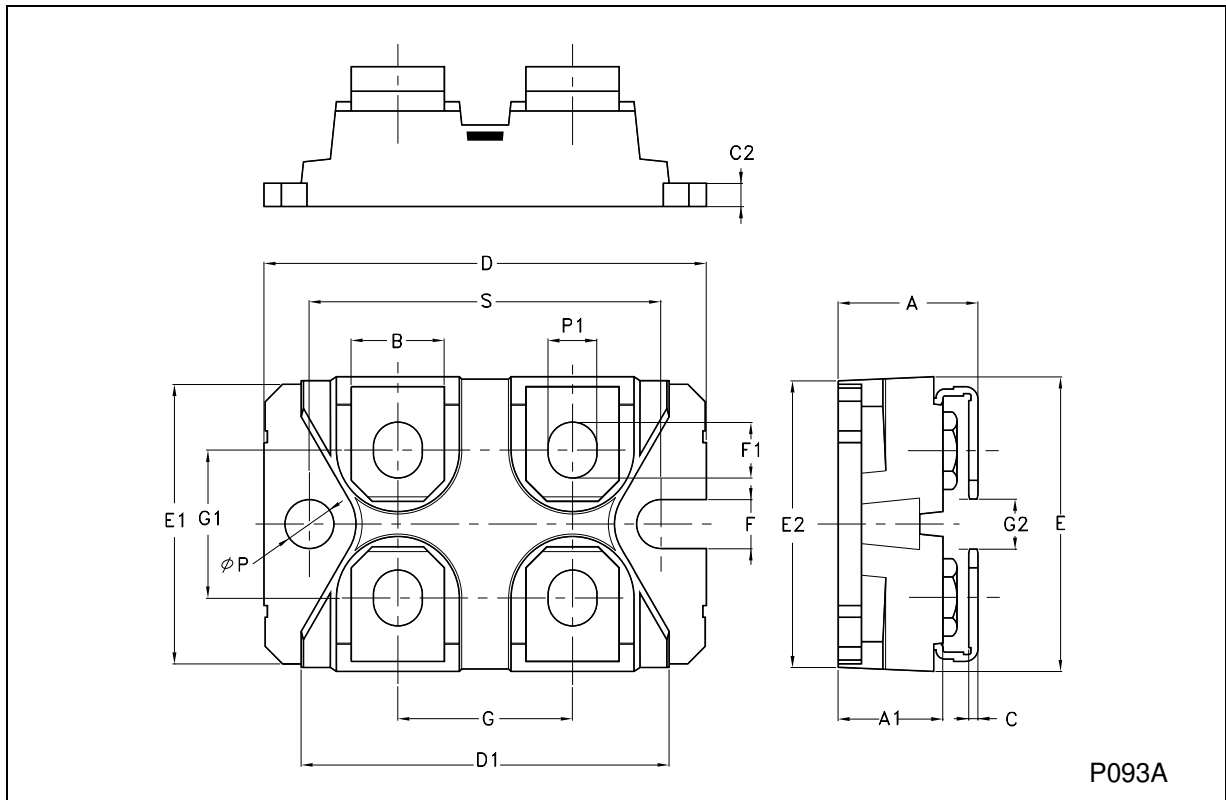
(1) Fast electronic switch (2) Non-inductive load (3) Fast recovery rectifier

Turn-off Switching Waveforms



ISOTOP MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	11.8		12.2	0.465		0.480
A1	8.9		9.1	0.350		0.358
B	7.8		8.2	0.307		0.322
C	0.75		0.85	0.029		0.033
C2	1.95		2.05	0.076		0.080
D	37.8		38.2	1.488		1.503
D1	31.5		31.7	1.240		1.248
E	25.15		25.5	0.990		1.003
E1	23.85		24.15	0.938		0.950
E2		24.8			0.976	
G	14.9		15.1	0.586		0.594
G1	12.6		12.8	0.496		0.503
G2	3.5		4.3	0.137		1.169
F	4.1		4.3	0.161		0.169
F1	4.6		5	0.181		0.196
P	4		4.3	0.157		0.169
P1	4		4.4	0.157		0.173
S	30.1		30.3	1.185		1.193



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