赫品电子
ECUBE-TECHNOLOGY

SIDAC Specification

EC-*A,*B,*S Series

Version No.:ADB2-SID-ECABS-AS

General Description

Ecube' s SIDAC (Silicon Diode for Alternating Current) represents an unique set of thyristor qualities. The SIDAC is a bidirectional voltage triggered switch. Upon application of a voltage exceeding the sidac breakover voltage point, the sidac switches on through a negative resistance region to a low on-state voltage. conduction will continue until the current is interrupted or drops below the minimum holding current of the device.

At Present,Ecube-Tech can offer three kinds of package in DO-41,DO-15,SMB.

Ecube's Sidacs feature glass passivated junctions to ensure a rugged and dependable device capable of withstanding harsh environments.

Features

Bilateral Voltage triggered

AC circuit oriented

Glass-passivated junctions

High surge current capabilities

Applications

High voltage lamp ignitors

Xenon ignitors

Natural gas ignitors

Over voltage protector

Gas oil ignitors

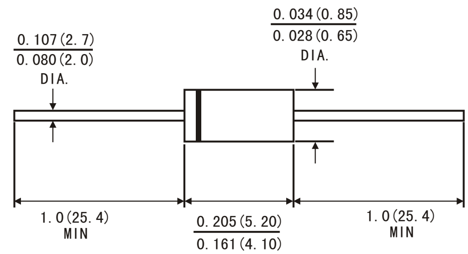
High voltage power supply

Pulse generators

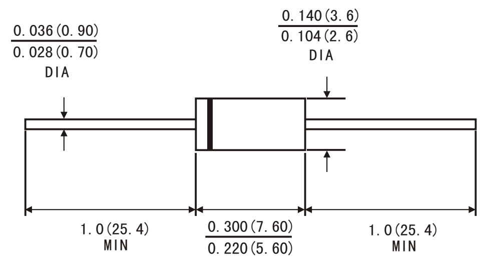
Fluorescent lighting ignitors

HID (high intensity discharge) lighting ignitors

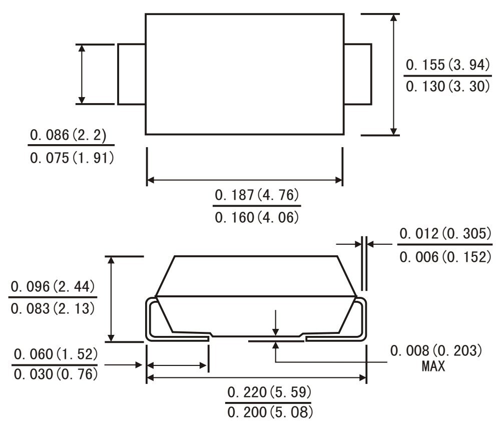
DO-41



DO-15



SMB(DO-214AA)

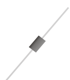


Dimensions in inches and (millimeters)

SIDAC Specification

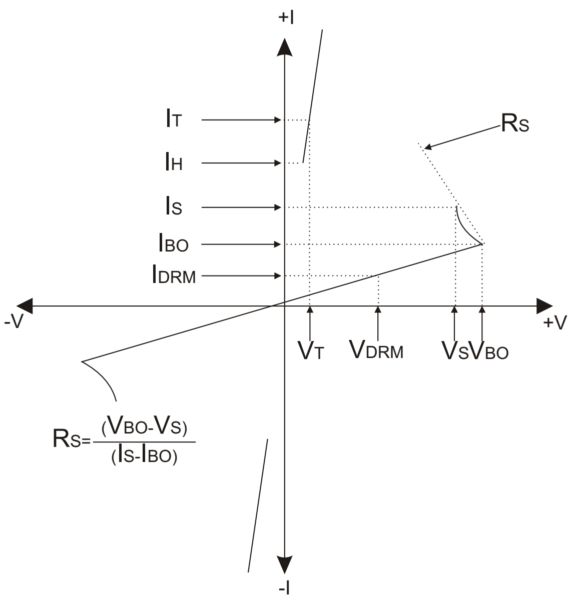
EC-*A,*B,*S Series

Version No.:ADB2-SID-ECABS-AS

PART NUMBER			$I_{T(RMS)}$	V_{DRM}	V_{BO}		I_{DRM}	I_{BO}
 DO-41	 DO-15	 SMB	On-state RMS Current $T_j \leq 110$°C 50/60Hz Amps	Repetitive Peak Off-state Voltage Volts	Breakover voltage 50/60Hz sine wave Volts		Repetitive Peak Off-state Current 50/60hz Sine Wave $V=V_{DRM}$ µAmps	Breakover Current 50/60Hz sine wave µAmps
			MAX	MIN	MIN	MAX	MAX	MAX
EC105A	EC105B	EC105S	1.0	±90	95	113	5	10
EC110A	EC110B	EC110S	1.0	±90	104	118	5	10
EC120A	EC120B	EC120S	1.0	±90	110	125	5	10
EC130A	EC130B	EC130S	1.0	±90	120	138	5	10
EC140A	EC140B	EC140S	1.0	±90	130	146	5	10
EC150A	EC150B	EC150S	1.0	±90	140	170	5	10
EC200A	EC200B	EC200S	1.0	±180	190	215	5	10
EC220A	EC220B	EC220S	1.0	±180	205	230	5	10
EC240A	EC240B	EC240S	1.0	±190	220	250	5	10
EC250A	EC250B	EC 250S	1.0	±190	240	280	5	10
EC300A	EC300B	EC300S	1.0	±190	270	330	5	10

I_H		V_{TM}			I_{TSM}		R_S	d_v/d_t	d_i/d_t
Dynamic Holding Current 50/60hz Sine Wave R=100 OHMS mAmps		Peak On-state Voltage I_T=1Amp Volts MAX Package			Peak One Cycle Surge Current 50/60Hz Sine Wave (Non-Repetitive) Amps		Switching Resistance $Rs = \frac{(V_{BO}-V_S)}{(I_S-I_{BO})}$ 50/60Hz Sine Wave KΩ	Critical Rate-of-rise Of Off-state Voltage at Rate V_{DRM} $T_j \leq 100$°C Volts/ µsecond	Critical Rate-of-Rise Of On-State Current Amps/ µsecond
					60Hz	50Hz			
TYP	MAX	DO-41	DO-15	SMB			MIN	MIN	TYP
40	100	1.5	1.5	1.5	20	16.7	0.1	1500	150
40	100	1.5	1.5	1.5	20	16.7	0.1	1500	150
40	100	1.5	1.5	1.5	20	16.7	0.1	1500	150
40	100	1.5	1.5	1.5	20	16.7	0.1	1500	150
40	100	1.5	1.5	1.5	20	16.7	0.1	1500	150
40	100	1.5	1.5	1.5	20	16.7	0.1	1500	150
40	100	1.5	1.5	1.5	20	16.7	0.1	1500	150
40	100	1.5	1.5	1.5	20	16.7	0.1	1500	150
40	100	1.5	1.5	1.5	20	16.7	0.1	1500	150
40	100	1.5	1.5	1.5	20	16.7	0.1	1500	150
40	100	1.5	1.5	1.5	20	16.7	0.1	1500	150

V-I Characteristics



Thermal Resistance

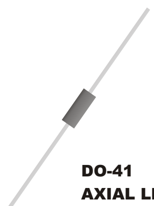
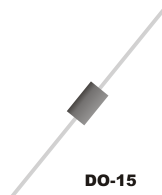
THERMAL RESISTANCE(STEADY STATE) $R_{\theta JC}(R_{\theta JA})$ °C/W (TYPICAL)		
 DO-41 AXIAL LEAD	 DO-15 AXIAL LEAD	 DO-214AA(SMB) SURFACE MOUNT
15(50)	14(45)	17(75)

FIG.1 Normalized DC Holding Current vs case/Lead Temperature

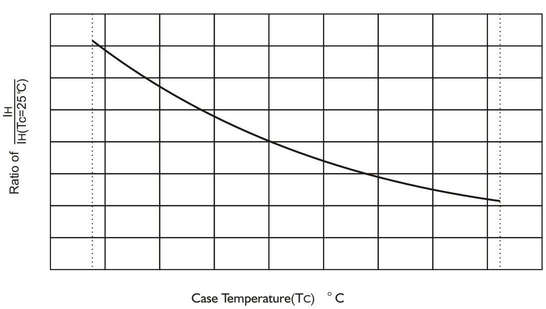


FIG.2 Peak surge current vs surge current duration

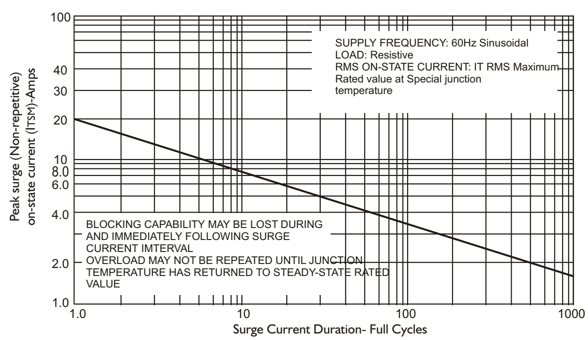


FIG.3 Maximum Allowable Ambient temperature vs on-state Current

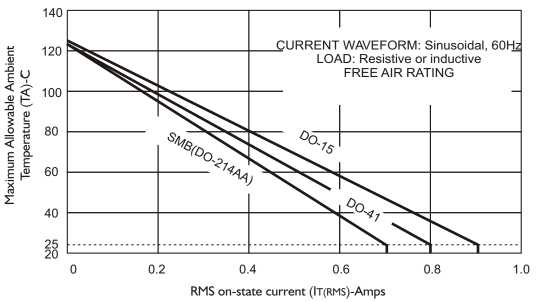


FIG.4 Normalized Repetitive Peak Breakover Current vs Junction Temperature

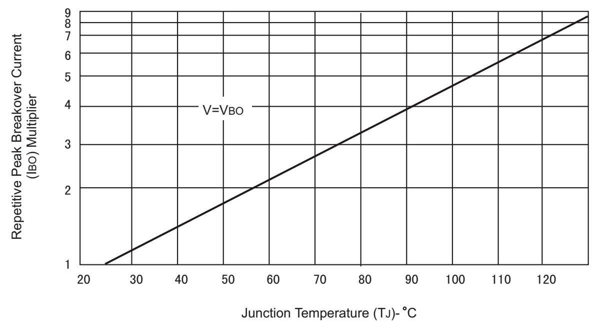


FIG.5 Normalized CBO Changes vs Case Temperature

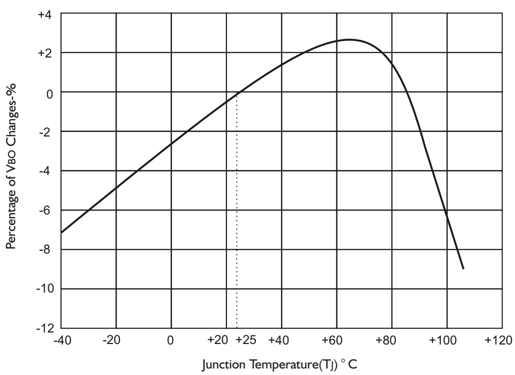


FIG.6 Repetitive Peak On-State Current (ITRM) vs Pulse Width at Various Frequencies

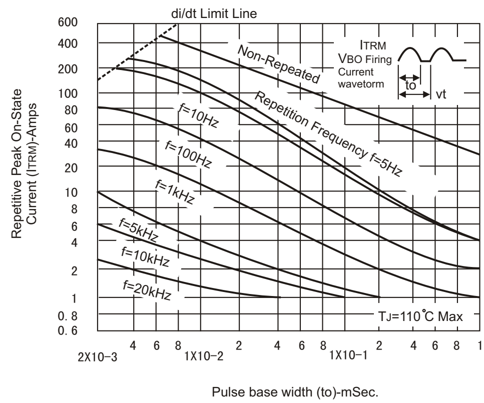


FIG.7 On-State Current vs On-State Voltage

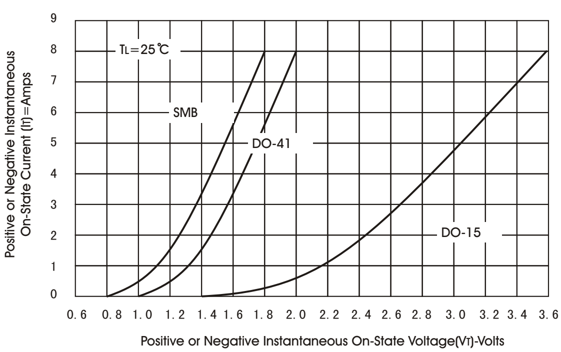


FIG.8 Power Dissipation (Typical) vs On-State Current

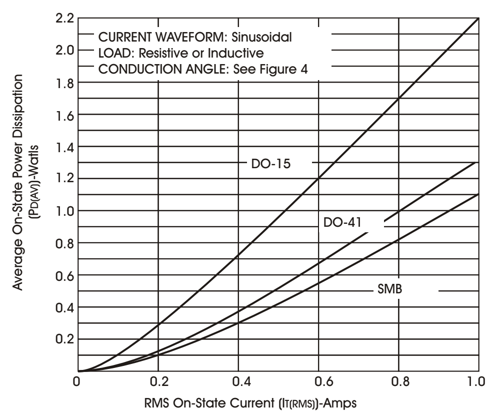


FIG.9 Ignitor Circuit (Low Voltage Input)

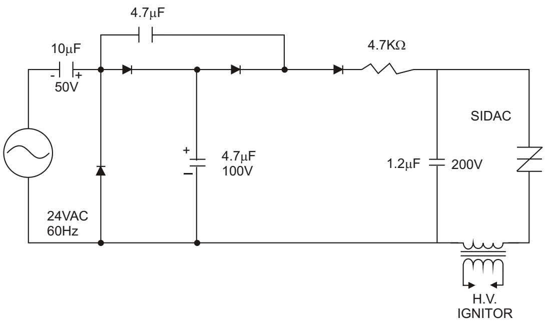


FIG.10 Typical High Pressure Sodium Lamp Firing Circuit

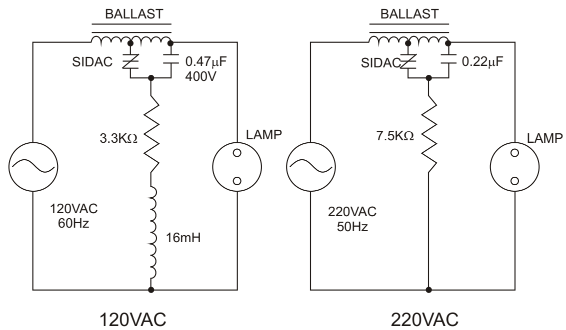


FIG.11 Comparison of SIDAC vs SCR

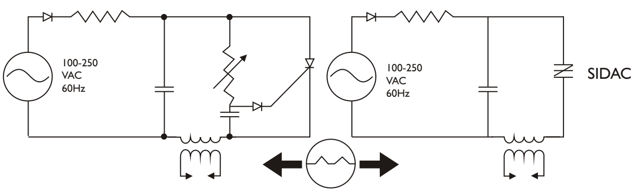


FIG.12 Xenon Lamp Flashing Circuit

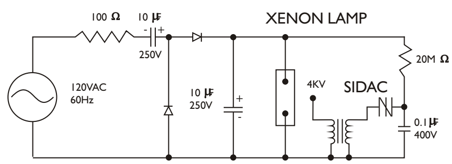


FIG.13 Dynamic Holding Current Test Circuit for SIDAC

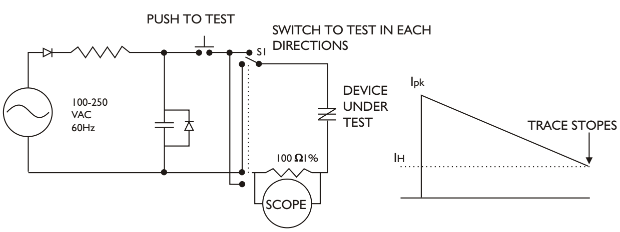


FIG.14 Basic SIDAC Circuit

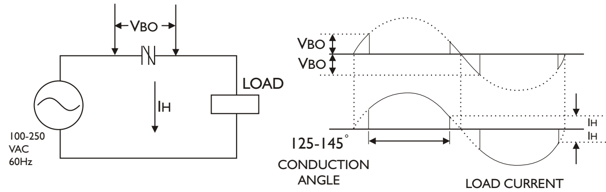
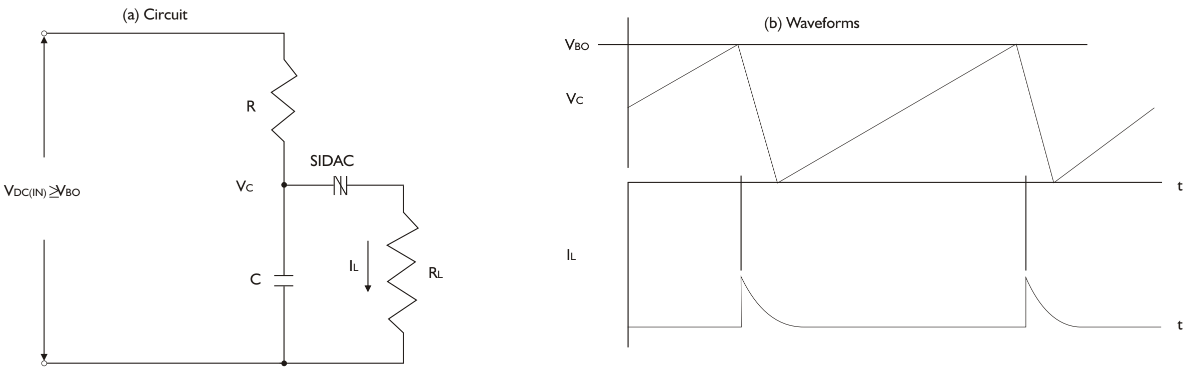
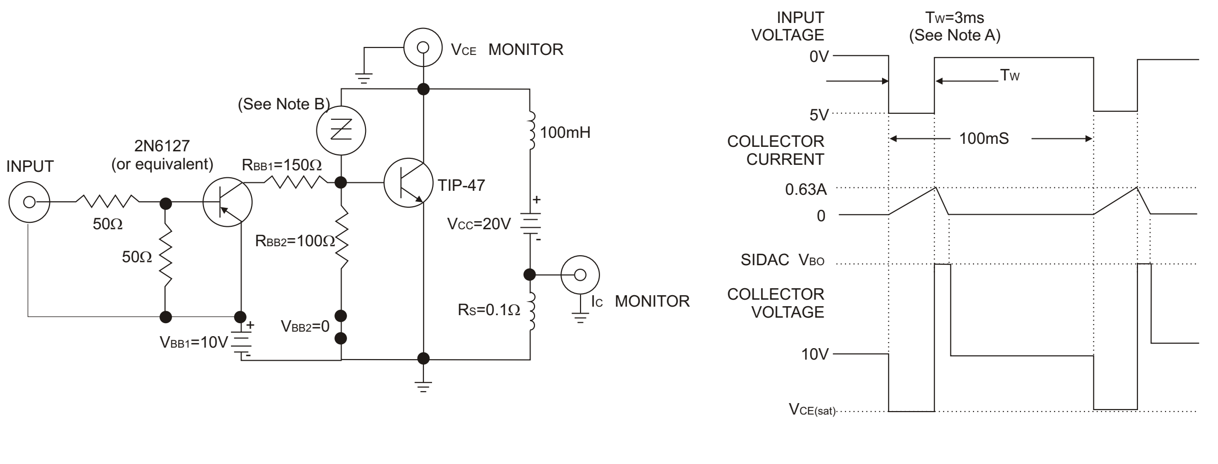


FIG.15 Relaxation Oscillator Using a SIDAC



$$R_{max} \geq \frac{V_{IN}-V_{BO}}{I_{BO}} \qquad R_{min} \geq \frac{V_{IN}-V_{TM}}{I_{H(MIN)}}$$

FIG.16 SIDAC Added To Protect Transistor For Typical Transistor Inductive Load Switching Requirements



TEST CIRCUIT

VOLTAGE AND CURRENT WAVEFORMS

NOTE A: Input pulse width is increased until I_{CM}=0.63A.

NOTE B: Sidac (or Diac or series of diacs) chosen so that V_{BO} is just below V_{CEO} rating of transistor to be protected. The Sidac (or Diac) eliminates a reverse breakdown of the transistor in inductive switching circuits where otherwise the transistor could be destroyed.

CONTACT INFORMATION

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