092586

Reference No. SA01TY23

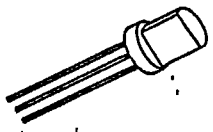
DIGITRON

alt DGE 090086

DGE M-05 1500

SCR

C13

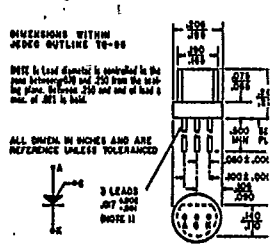


Outstanding Features

- Planar Passivated Structure
- Low Leakage Current
- Low Triggering Current
- Low Forward Voltage Drop
- Low Cost
- High Gate Breakdown Voltage

Applications

- Automotive Switching
- SCR Triggering
- Ring Counters
- Level Detectors
- Fuse Circuits
- Miniature Lamp Drivers
- Low Level Logic
- Memory Circuits



The C13 CSCR operates similarly to the conventional SCR. The major difference is that the device is turned on by forward bia the junction between the anode and the anode gate. The voltage on the anode gate is made negative with respect to the voltage o anode. "Conventional" SCR's are turned on by injecting current into the lower p-base (cathode gate), while those that are tu on through the upper n-base (anode gate) are called "complementary" SCR's. A four-terminal, Silicon Controlled Switch (SCS) connections to both bases and either, or both, bases may be used to initiate switching.

MAXIMUM ALLOWABLE RATINGS

Types	Peak Forward Blocking Voltage, V_{DRM} (R_{GK} = 1K)	Working and Repetitive Peak Reverse Voltage, V_{RWM} & V_{RRM} (Open Gate)	Non-Repetitive Peak Reverse Voltage, V_{RSM} (Open Gate)
C13Y	30 volts	30 volts	30 volts
C13F	50 volts	50 volts	50 volts

*Reverse Blocking Voltage, V_{RM} (Finite gate resistance) 5
Continuous Forward Current, I_{TM} .....250 Milliam
Peak Forward Current, I_{TRM} (10 μsec., 1% Duty Cycle, 100°C) .....3 Am
Peak Forward Current, I_{TRM} (100 μsec., 1% Duty Cycle, 100°C) .....1 Am
Peak Forward Surge Current, I_{TSM} (non-repetitive, 5 μsec., 25°C).....10 Am
Peak Forward Gate Current, I_{GM} .....50 Milliam
Peak Reverse Gate Current, I_{GM} .....50 Milliam
Peak Reverse Gate Voltage, V_{GM} 30
Average Gate Power Dissipation, $P_{G(AV)}$ ..... 10 Milli
Storage Temperature, T_{STG} .....−65°C to +1
Operating Temperature .....−55°C to +1
Total Power, P_T (Derate linearly to 0 at 100°C) 450

*When used on AC operation with finite gate resistance, a diode must be added in series with the cathode to absorb the reverse voltage.

CHARACTERISTICS

(at 25°C, unless otherwise noted)

Test	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Forward Blocking Current	I_D	—	.01	0.10	μA	V_D = rated, R_G = 1K
		—	0.10	100		V_D = rated, R_G = 1K, T_A = 100°C
Reverse Blocking Current	I_R	—	.001	0.10		V_R = rated, Open Gate
		—	.10	100		V_R = rated, Open Gate, T_A = 100°C
Gate Trigger Current*	I_{GT}	—	.05	—		V_D = 6 volts, R_L = 100 ohms
		—	2.0	20		V_D = 6 volts, R_L = 100 ohms, T_A = −55°C
Gate Trigger Voltage**	V_{GT}	—	0.45	0.60	Volts	V_D = 6 volts, R_L = 100 ohms
		—	0.25	0.40		V_D = 6 volts, R_L = 100 ohms, T_A = 100°C
Forward Voltage Drop	V_F	—	1.4	1.8		I_F = 250mA
		—	1.4	—		I_F = 250 mA, T_A = 100°C
Holding Current	I_H	—	0.70	—	mA	R_G = 1K
		—	0.42	—		R_G = 1K, T_A = 100°C
Turn-On Time	t_{gt}	—	—	0.10	μsec	see Circuit A
Recovery Time	t_{rr}	—	—	10		see Circuit B

8021-4232 EDITOR