DIGITRON SEMICONDUCTORS

ID100-ID106 SILICON CONTROLLED RECTIFIER

0.5 AMP

Available Non-RoHS (standard) or RoHS compliant (add PBF suffix).
Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.

MAXIMUM RATINGS

Rating	Symbol	ID100	ID101	ID102	ID103	ID104	ID105	ID106	Unit
Repetitive peak off state voltage	V_{DRM}	30	60	100	150	200	300	400	Volts
Repetitive peak reverse voltage	V_{RRM}	30	60	100	150	200	300	400	Volts
DC on-state current 75°C ambient 100°C case	I_T	250 0.5							mA Amps
Repetitive peak on-state current	I_{TRM}	6							Amps
Peak one cycle surge (non-repetitive) on-state current	I_{TSM}	Up to 30							Amps
Peak gate current	I_{GM}	250							mA
Average gate current	$I_{G(AV)}$	25							mA
Reverse gate voltage	V_{GR}	6							Volts
Storage temperature range	T_{stg}	-65 to 150							°C
Operating temperature range	T_J	-65 to 125							°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristics	Symbol	Min	Typ	Max	Unit	Test Condition
Off-state current (ID100-ID104)	I_{DRM}	-	5.0	50	µA	V_{DRM} = rating, R_{GK} = 1K, T = 125°C
Off-state current (ID105-ID106)		-	10.0	100	µA	V_{DRM} = rating, R_{GK} = 1K, T = 125°C
Reverse current (ID100-ID104)	I_{RRM}	-	10.0	50	µA	V_{RRM} = rating, R_{GK} = 1K, T = 125°C
Reverse current (ID105-ID106)		-	15.0	100	µA	V_{RRM} = rating, R_{GK} = 1K, T = 125°C
Gate trigger current	I_{GT}	-	5.0	200	µA	V_D = 5V, R_{GS} = 10K
		-	-	500	µA	V_D = 5V, R_{GS} = 10K, T = -40°C
Gate trigger voltage	V_{GT}	0.40	0.55	0.8	V	V_D = 5V, R_{GS} = 100Ω
		-	-	1.0	V	V_D = 5V, R_{GS} = 100Ω, T =- -40°C
		0.10	-	-	V	V_D = 5V, R_{GS} = 100Ω, T = 125°C
Peak on-state voltage	V_{TM}	-	-	1.7	V	I_T = 1A (pulse)
Holding current	I_H	-	1.0	5.0	mA	R_{GK} = 1K
		-	-	10.0	mA	R_{GK} = 1K, T = -40°C
Turn-on time	t_{on}	-	0.5	-	µs	I_G = 10mA, I_T = 1A, V_D = 30V
Circuit commutated turn-off time (ID100-ID104)	t_q	-	8.0	-	µs	I_T = I_R = 1A, R_{GK} = 1KΩ
Circuit commutated turn-off time (ID105-ID106)		-	15.0	-	µs	I_T = I_R = 1A, R_{GK} = 1KΩ

Blocking voltage ratings apply over the full operating temperature range, provided the gate is connected to the cathode through an appropriate resistor, 1000 ohms or smaller, or other adequate gate bias is used.

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D I G I T R O N S E M I C O N D U C T O R S

ID100-ID106

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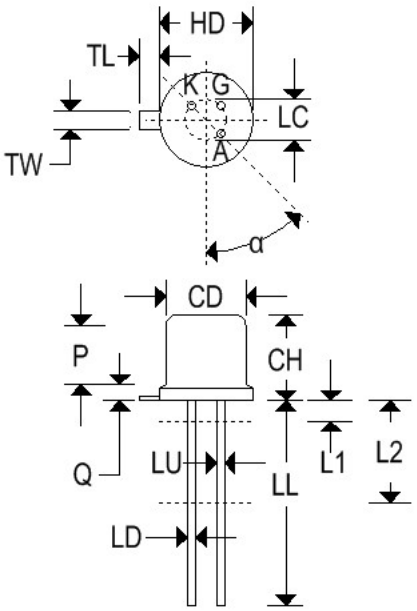
MECHANICAL CHARACTERISTICS

Case	**TO-18**
Marking	**Alpha-numeric**
Pin out	**See below**



	TO-18			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.209	0.230	5.310	5.840
B	0.178	0.195	4.520	4.950
C	0.170	0.210	4.320	5.330
D	0.016	0.021	0.406	0.533
E	-	0.030	-	0.762
F	0.016	0.019	0.406	0.483
G	0.100 BSC		2.540 BSC	
H	0.036	0.046	0.914	1.170
J	0.028	0.048	0.711	1.220
K	0.500	-	12.700	-
L	0.250	-	6.350	-
M	45°C BSC		45° BSC	
N	0.050 BSC		1.270 BSC	
P	-	0.050	-	1.270

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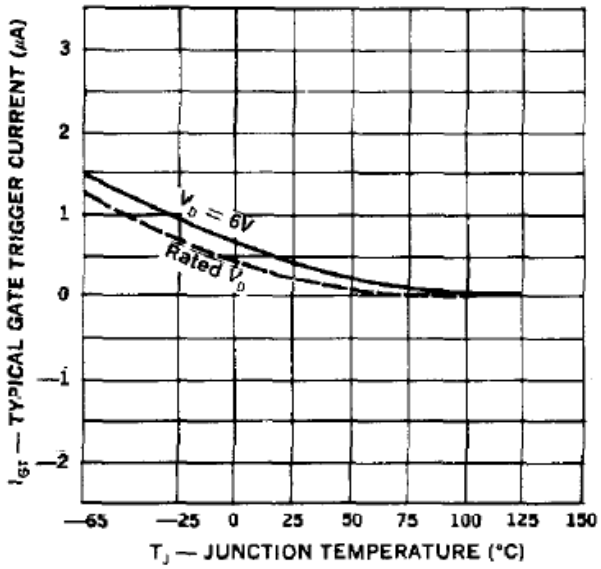
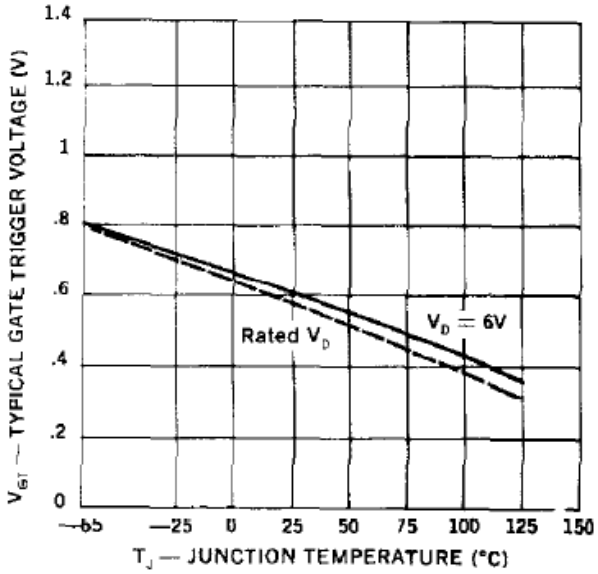
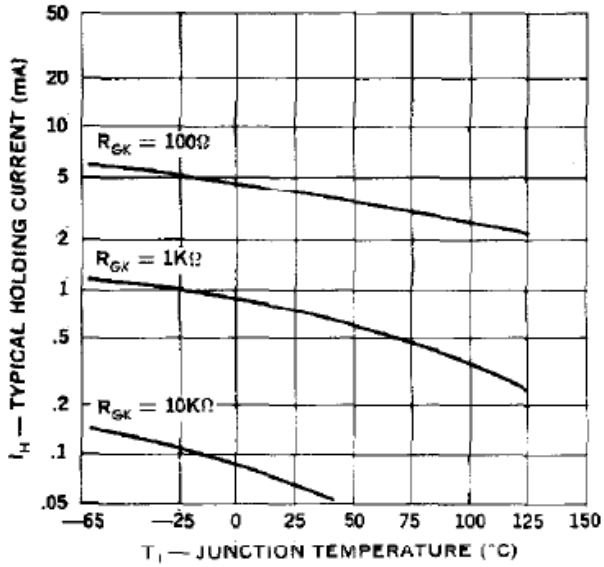
Gate Trigger Current vs. Junction Temp.



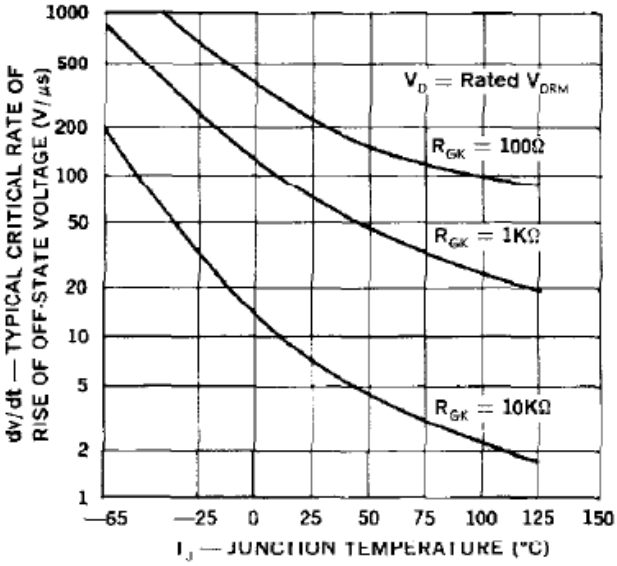
Gate Trigger Voltage vs. Junction Temp.



Holding Current vs. Junction Temp.



dv/dt vs. Junction Temp.



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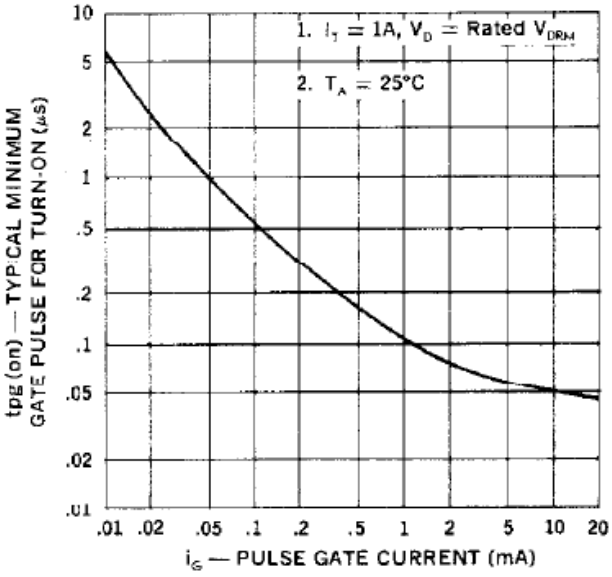
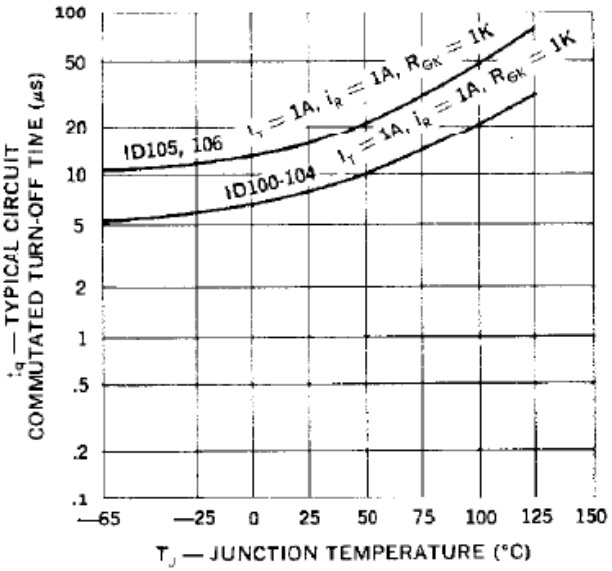
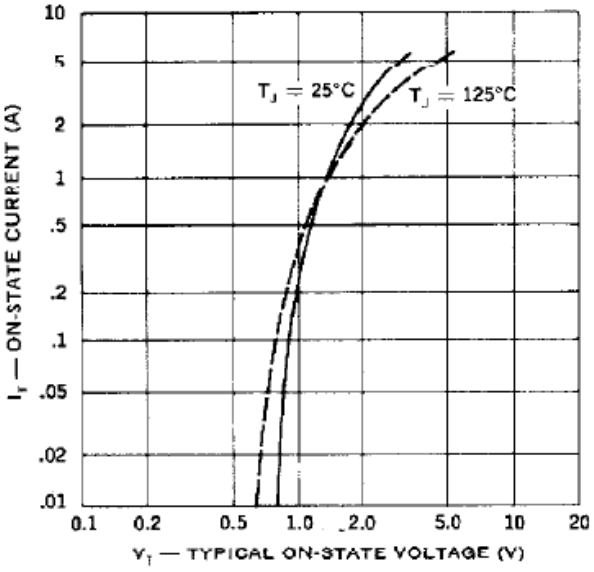
Gate Pulse for Turn-On vs. Pulse Gate Current



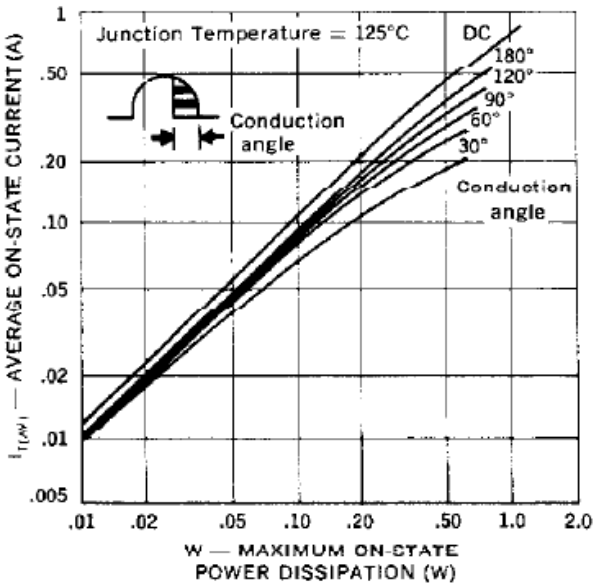
Circuit Commutated Turn-Off Time vs. Junction Temp.



Current vs. On State Voltage



Current vs. Power Dissipation



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