

# SCRs

## 1.6 Amp, Planar

ID200-ID203  
ID300-ID301

### FEATURES

- Voltage Rating: to 200V
- Max. Gate Trigger Current: 200 $\mu$ A
- Hermetically Sealed Metal Can
- Planar Passivated Construction

### DESCRIPTION

This Data Sheet describes Microsemi's line of hermetically sealed industrial SCRs designed for high-voltage, medium-current control applications. The Series is packaged in a TO-39 metal case with Microsemi's unique oxide passivated junctions to ensure reliability and parameter stability.

Typical applications include relay equipment, motor controls, process controllers and pulse generators.

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### ABSOLUTE MAXIMUM RATINGS

	ID200	ID201	ID202	ID203	ID300	ID301
Repetitive Peak Off-State Voltage, $V_{DRM}$	50V	100V	150V	200V	300V	400V
Repetitive Peak Reverse Voltage, $V_{RRM}$	50V	100V	150V	200V	300V	400V
Non-Repetitive Peak Reverse Voltage, $V_{RSM}$ (<5ms)	75V	150V	225V	300V	400V	500V
On-State Current, $I_{T(RMS)}$						
70°C Case	1.6A					
75°C Ambient	450mA					
Peak One Cycle Surge (Non-Repetitive) On-State Current, $I_{TSM}$	15A					
Repetitive Peak On-State Current, $I_{TRM}$	up to 30A					
Rate of Rise of On-State Current, $di/dt$	100A/ $\mu$ s					
$I^2t$ (for times > 1.5 ms)	0.83A <sup>2</sup> s					
Peak Gate Current, $I_{GM}$	250mA					
Average Gate Current, $I_{G(AV)}$	25mA					
Reverse Gate Voltage, $V_{GR}$	6V					
Storage Temperature Range	-65°C to +150°C					
Operating Temperature Range	-40°C to +110°C					

### MECHANICAL SPECIFICATIONS

	ins.	mm.
A	.305-.335	7.75-8.51
B	.315-.370	8.51-9.40
C	.240-.260	6.35-6.60
D	.010-.030	.25-.76
E	.5 MIN.	12.70 MIN.
F	.017 + .002 - .001	.432 + .051 - .025
G	.200	5.08
H	.100	2.54
J	.031±.003	.79±.08
K	.029-.045	.74-1.14
L	.100	2.54

TO-205AD (TO-39)

## ELECTRICAL SPECIFICATIONS (at 25°C unless noted)

Test	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Off-State Current	$I_{DRM}$	—	—	10	$\mu A$	$V_{DRM} = \text{Rating}, R_{GK} = 1K, T = 25^{\circ}C$
		—	5	100	$\mu A$	$V_{DRM} = \text{Rating}, R_{GK} = 1K, T = 110^{\circ}C$
Reverse Current	$I_{RRM}$	—	—	10	$\mu A$	$V_{RRM} = \text{Rating}, R_{GK} = 1K, T = 25^{\circ}C$
		—	10	100	$\mu A$	$V_{RRM} = \text{Rating}, R_{GK} = 1K, T = 110^{\circ}C$
Gate Trigger Current	$I_{GT}$	—	—	200	$\mu A$	$V_D = 5V, R_{GS} = 10K, T = 25^{\circ}C$
		—	—	500	$\mu A$	$V_D = 5V, R_{GS} = 10K, T = -40^{\circ}C$
On-State Voltage	$V_{GT}$	0.4	0.52	0.8	V	$V_D = 5V, R_{GS} = 100\Omega, T = 25^{\circ}C$
		0.5	0.7	1.0	V	$V_D = 3V, R_{GS} = 100\Omega, T = -40^{\circ}C$
		0.2	—	—	V	$V_D = 5V, R_{GS} = 100\Omega, T = 110^{\circ}C$
Peak On — Voltage	$V_{TM}$	—	—	2.2	V	$I_T = 4 \text{ Amp Pulse}, T = 25^{\circ}C$
Holding Current	$I_H$	0.3	0.7	3.0	mA	$R_{GK} = 1K, T = 25^{\circ}C$
		0.4	—	6.0	mA	$R_{GK} = 1K, T = -40^{\circ}C$
		0.2	—	—	mA	$R_{GK} = 1K, T = 110^{\circ}C$
Off-State Voltage — Critical Rate of Rise	$dv/dt$	—	20	—	V/ $\mu s$	$V_{DRM} = \text{Rated}, R_{GK} = 1K, T = 110^{\circ}C$
Turn-on Time	$t_{on}$	—	1.0	—	$\mu s$	$I_G = 10mA, I_T = I_A, V_D = 30V, T = 25^{\circ}C$
Circuit Commutated Turn-off Time	$t_q$	—	—	40	$\mu s$	$I_T = I_R = 1A, R_{GK} = 1K, T = 25^{\circ}C$

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