

RoHS compliant product  
A suffix of "-C" specifies halogen free

## FEATURES

- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- Positive Temperature Coefficient on  $V_F$
- Temperature-independent Switching
- 175°C Operating Junction Temperature

TO-220A



## MECHANICAL DATA

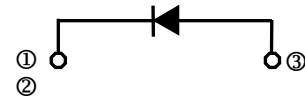
- Case: Molded plastic
- Epoxy: UL94V-0 rate flame retardant
- Lead: Lead solderable per MIL-STD-202 method 208 guaranteed
- Polarity: As Marked
- Mounting position: Any

## APPLICATIONS

- Switch Mode Power Supplies
- Power Factor Correction
- Motor Drive, PV Inverter, Wind Power Station

## ORDER INFORMATION

Part Number	Type
SIC10X65-C	Lead (Pb)-free and Halogen-free



## MAXIMUM RATINGS (Rating 25°C Case temperature unless otherwise)

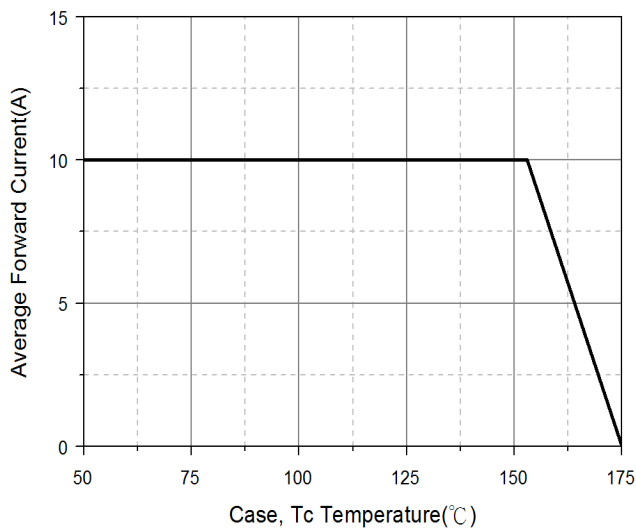
Parameter	Symbol	Rating	Unit
Repetitive Peak Reverse Voltage	$V_{RRM}$	650	V
Surge Peak Reverse Voltage	$V_{RSM}$	650	V
DC Blocking Voltage	$V_{DC}$	650	V
Forward Current	$I_F$	$T_C \leq 25^\circ\text{C}$	29
		$T_C \leq 135^\circ\text{C}$	14.5
		$T_C \leq 153^\circ\text{C}$	10
Peak Forward Surge Current @8.3ms half sine-wave	$I_{FSM}$	85	A
Power Dissipation	$T_C = 25^\circ\text{C}$	$P_D$	129
Operating Junction and Storage Temperature	$T_J, T_{STG}$	-55~175	°C
<b>Thermal Resistance Ratings</b>			
Typical Thermal Resistance Junction-Ambient	$R_{\theta JA}$	80	°C/W
Typical Thermal Resistance Junction-Case	$R_{\theta JC}$	1.16	

**ELECTRICAL CHARACTERISTICS**

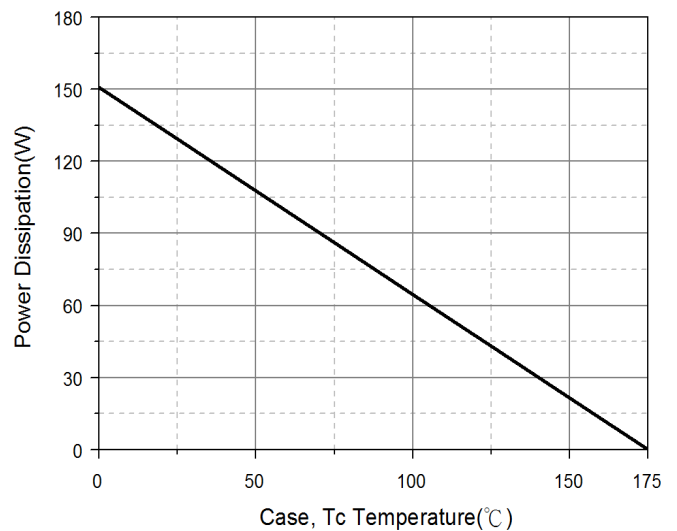
Parameter	Symbol	Typ.	Max.	Unit	Test Conditions
Forward Voltage	$V_F$	1.4	1.65	V	$I_F=10A, T_J=25^{\circ}C$
		1.75	2.3		$I_F=10A, T_J=175^{\circ}C$
Reverse Current	$I_R$	1	20	$\mu A$	$V_R=650V, T_J=25^{\circ}C$
		5	100		$V_R=650V, T_J=175^{\circ}C$
Junction Capacitance	$C_J$	440	-	pF	$V_R=1V, T_J=25^{\circ}C, f=1MHz$
		57	-		$V_R=200V, T_J=25^{\circ}C, f=1MHz$
		46	-		$V_R=400V, T_J=25^{\circ}C, f=1MHz$
Total Capacitive Charge	$Q_C$	25	-	nC	$V_R=650V, I_F=10A, T_J=25^{\circ}C, di/dt=200A/us$

**CHARACTERISTIC CURVES**

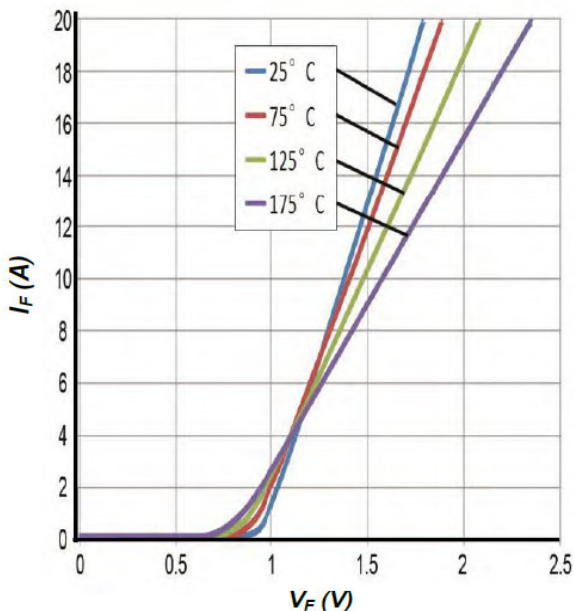
Typical Forward Current Derating Curve



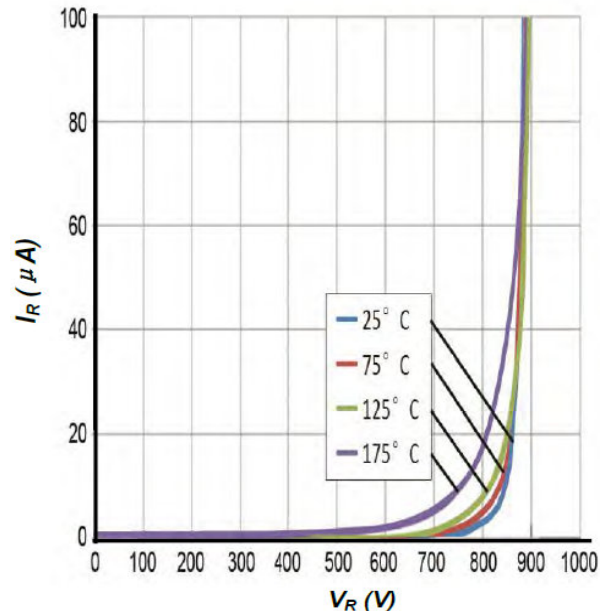
Power Derating



Forward Characteristics

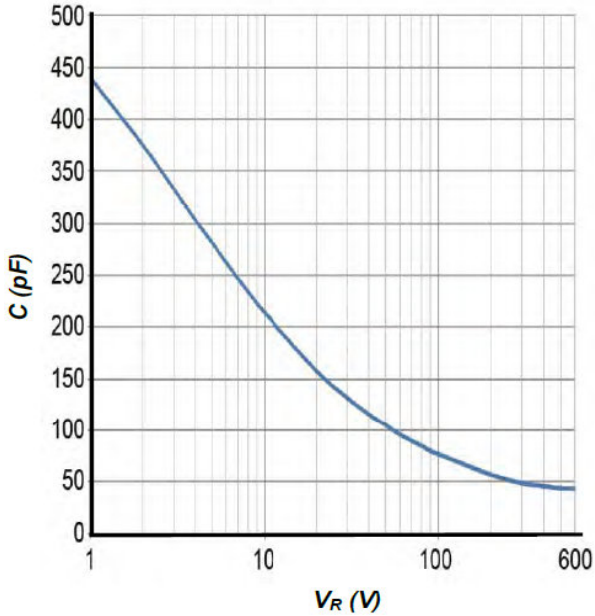


Reverse Characteristics

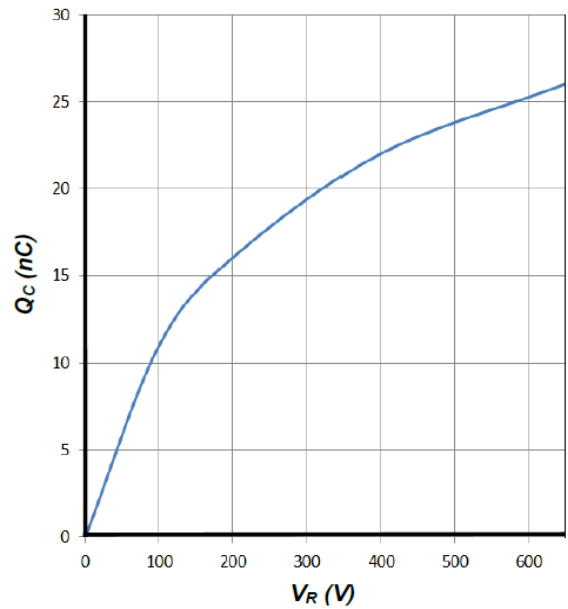


**CHARACTERISTIC CURVES**

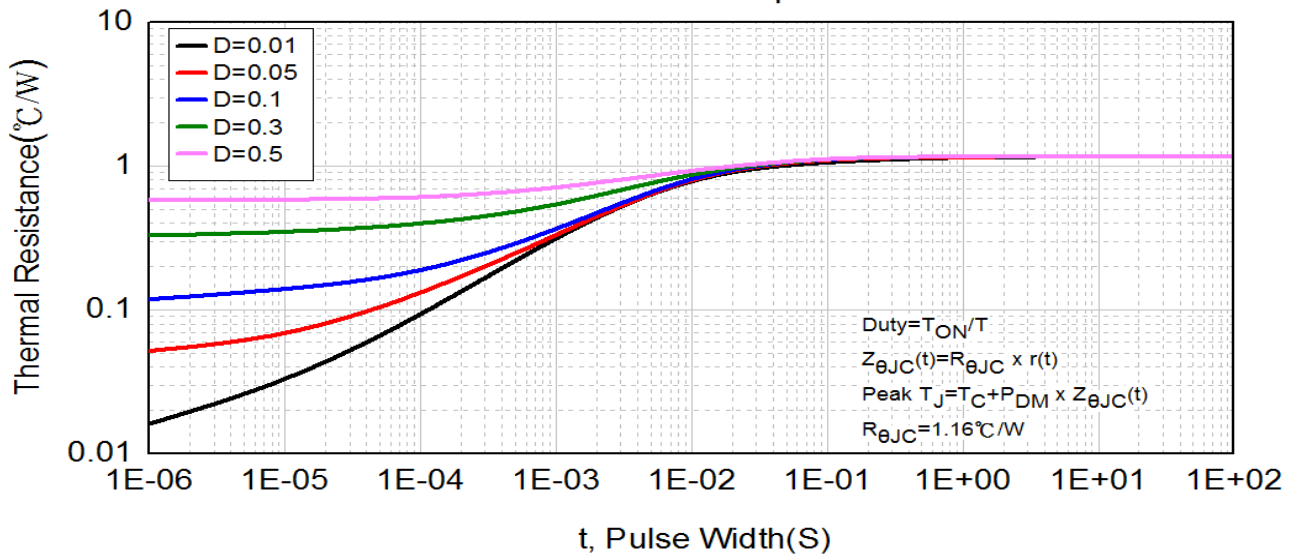
Total Capacitance vs. Reverse Voltage



Total Capacitive Charge vs. Reverse Voltage

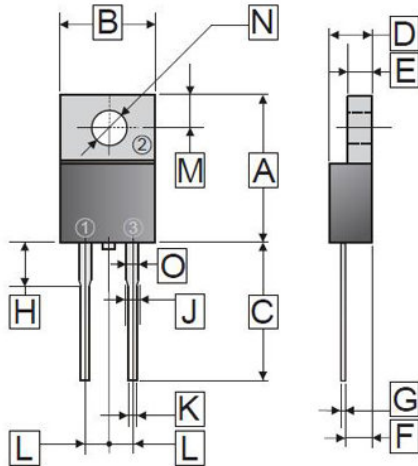


Transient Thermal Impedance



**PACKAGE OUTLINE DIMENSIONS**

TO-220A



REF.	Millimeter	
	Min.	Max.
A	14.68	15.80
B	9.57	10.57
C	12.70	14.62
D	4.18	4.98
E	1.07	1.47
F	2.03	2.98
G	0.27	0.64
H	2.95	4.20
J	-	1.30
K	0.51	1.11
L	4.84	5.32
M	2.48	3.05
N	$\phi$ 3.54	$\phi$ 4.14
O	0.97	1.57