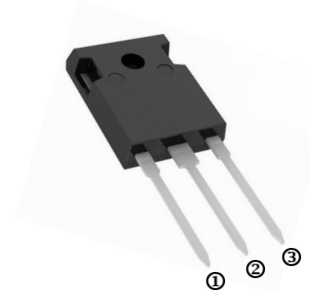


RoHS compliant product  
A suffix of "-C" specifies halogen free

## FEATURES

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

TO-247



## MECHANICAL DATA

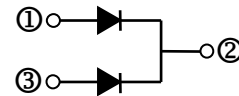
- Case: Molded plastic
- Epoxy: UL94V-0 rate flame retardant
- Lead: Lead Solderable per MIL-STD-202, Method 208 Guaranteed
- Polarity: As Marked
- Mounting Position: Any

## APPLICATIONS

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

## ORDER INFORMATION

Part Number	Type
SIC20X65Q-C	Lead (Pb)-free and Halogen-free



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

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 @ $T_C \leq 149^\circ\text{C}$	Per Leg	10	A
	Per Device	20	
Non-Repetitive Peak Forward Surge Current @ 8.3ms half sine-wave	$T_C = 25^\circ\text{C}$ $I_{FSM}$	90	A
Power Dissipation @ $T_C = 25^\circ\text{C}$	Per Leg	141	W
	Per Device	282	
Soldering Temperature	$T_{SOL}$	260	°C
Operating Junction and Storage Temperature	$T_J, T_{STG}$	-55~175	
<b>Thermal Resistance Ratings</b>			
Thermal Resistance from Junction-Ambient	$R_{\theta JA}$	80	°C/W
Thermal Resistance from Junction-Case	$R_{\theta JC}$	1.06	

**ELECTRICAL CHARACTERISTICS (Per Leg)**

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	$C_J$	618	-	pF	$V_R=0V, T_J=25^\circ C, f=1MHz$
		61	-		$V_R=200V, T_J=25^\circ C, f=1MHz$
		51	-		$V_R=400V, T_J=25^\circ C, f=1MHz$
Total Capacitive Charge	$Q_C$	25	-	nC	$V_R=650V, I_F=10A, T_J=25^\circ C$ $di/dt=200A/\mu s$

**CHARACTERISTIC CURVES**

Figure 1. Forward Characteristics

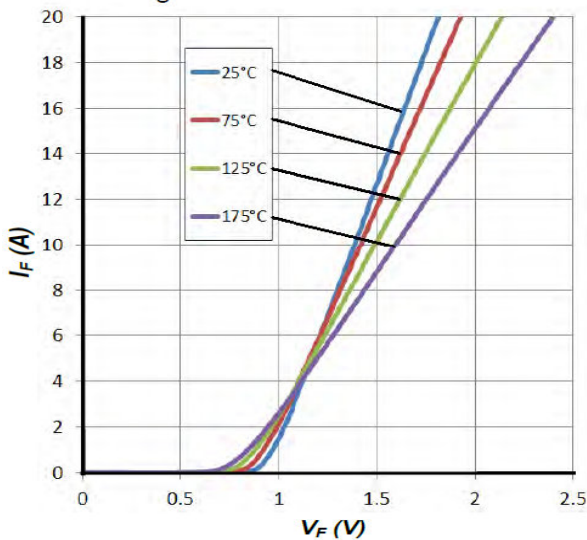


Figure 2. Reverse Characteristics

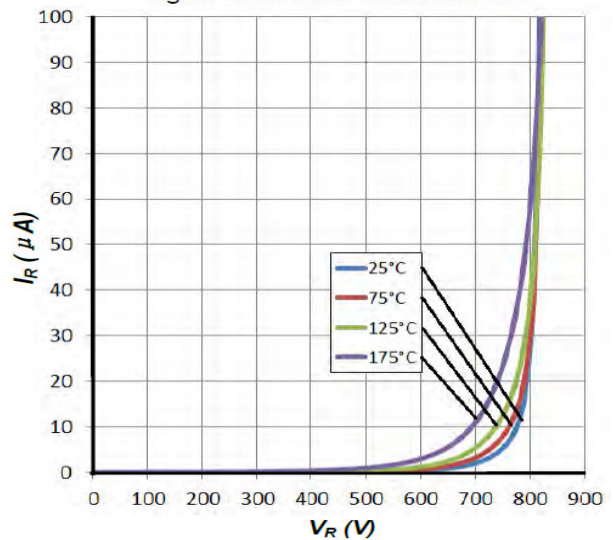


Figure 3. Power Derating

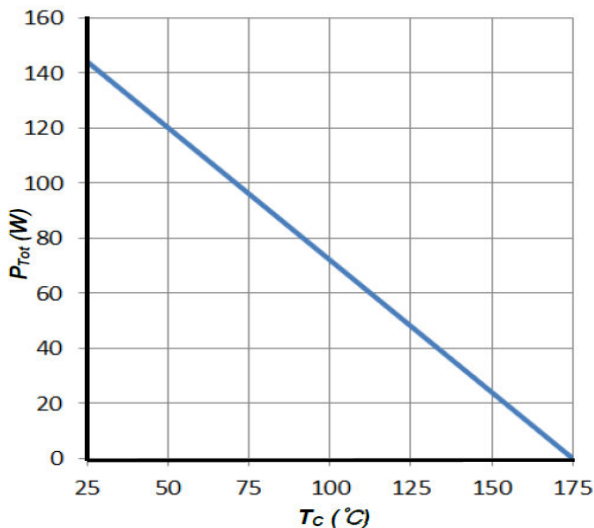
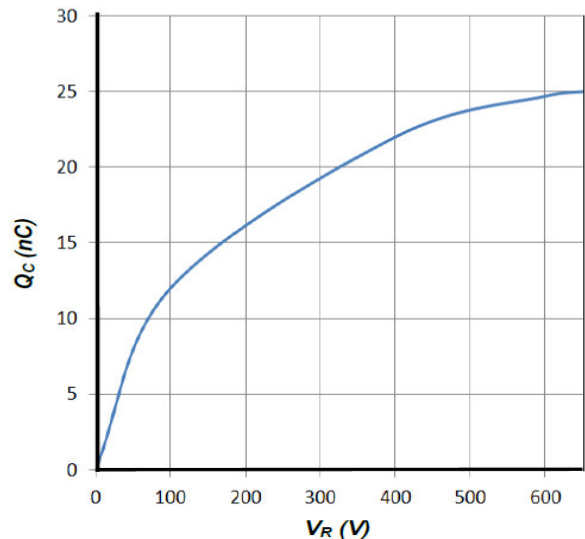


Figure 4. Total Capacitive Charge vs. Reverse Voltage



**CHARACTERISTIC CURVES**

Figure 5. Total Capacitance vs. Reverse Voltage

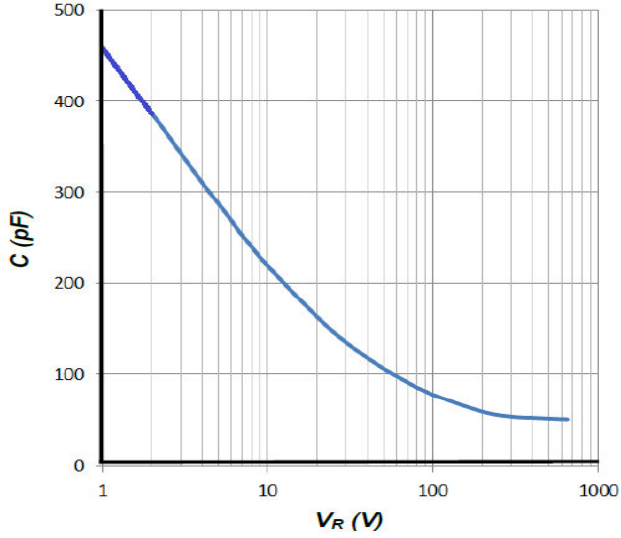
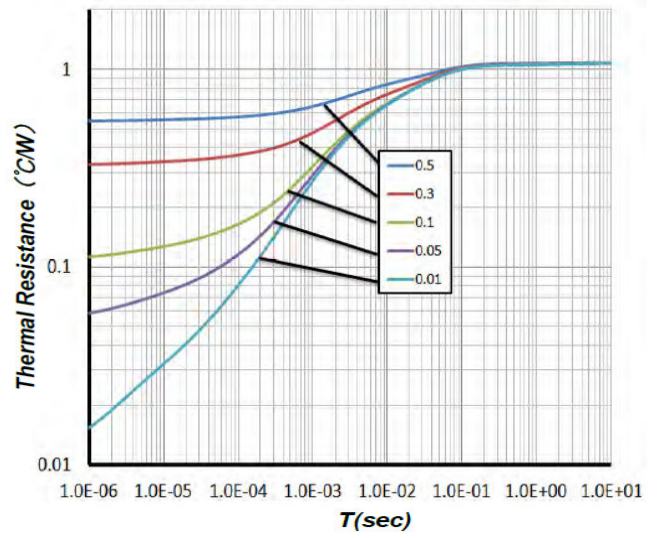
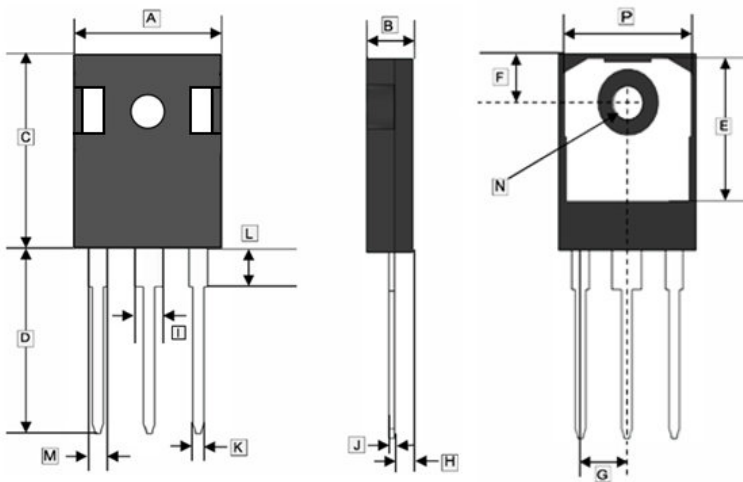


Figure 6. Transient Thermal Impedance



**PACKAGE OUTLINE DIMENSIONS**

TO-247



REF.	Millimeter	
	Min.	Max.
A	15.70	15.90
B	4.83	5.21
C	20.80	21.10
D	19.80	20.32
E	16.25	17.65
F	6.04	6.30
G	5.44 BSC.	
H	2.29	2.55
I	2.87	3.22
J	0.55	0.69
K	1.12	1.33
L	3.95	4.44
M	1.91	2.39
N	Ø3.56	Ø3.65
P	13.46	14.16