PRELIMINARY **CSD20030**

ZERO RECOVERY™ RECTIFIER

Features

- 300 Volt Schottky Rectifier
- Zero Reverse Recovery
- Zero Forward Recovery
- High Frequency Operation
- Temperature Independent Switching Behavior
- Extremely Fast Switching
- Positive Temperature Coefficient on V_F

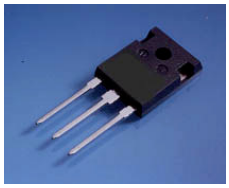
Benefits

- Replace Bipolar with Unipolar Rectifiers
- Essentially No Switching Losses
- Higher Efficiency
- Reduction Of Heat Sink Requirements
- Parallel Devices without Thermal Runaway

Applications

- Switch Mode Power Supplies
- Power Factor Correction
- Motor Drives
- Output Rectification

Package



Maximum Ratings

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	300	V
Surge Peak Reverse Voltage	V_{RSM}	300	V
DC Blocking Voltage	V_{DC}	300	V
Average Forward Current (Per Device) T_C=150°C (Per Leg)	$I_{F(AV)}$	20 10	A
Repetitive Peak Forward Surge Current (Per Leg) T_C=25°C, t_P=8.3ms, Half Sine Wave	I_{FRM}	40	A
Non-Repetitive Peak Forward Surge Current (Per Leg) T_C=25°C, t_P=10µs, Pulse	I_{FSM}	200	A
Power Dissipation (Per Leg) T_C = 25°C	P_{tot}	79	W
Operating Junction and Storage Temperature	T_J , T_{stg}	-55 to +175	°C

ELECTRICAL CHARACTERISTICS (PER LEG)

Parameter	Symbol	Min	Typ	Max	Units
Forward Voltage I_F = 10A T_J=25°C I_F = 10A T_J=175°C	V_F		1.2 1.4	1.4 1.8	V
Reverse Current V_R = 300V T_J=25°C V_R = 300V T_J=175°C	I_R		50 1000	200 2000	µA
Total Capacitive Charge V_R = 300V,I_F = 10A, d*i*/d*t* = 500 A/µs, T_J = 25°C	Q_C		11.5		nC
Total Capacitance V_R = 0V, T_J = 25°C, f =1MHz V_R = 150V, T_J = 25°C, f =1MHz V_R = 300V, T_J = 25°C, f =1MHz	C		660 62 58		pF

NOTE:
1. This is a majority carrier diode, so there is no reverse recovery charge.

THERMAL CHARACTERISTICS

Characteristic		Symbol	Min	Typ	Max	Units
Thermal Resistance from Junction to Case	Per Leg	$R_{\theta JC}$		1.9		°C/W
	Per Device	$R_{\theta JC}$		0.95		°C/W

Typical Performance (Per Leg)

Figure 1. Forward Characteristics

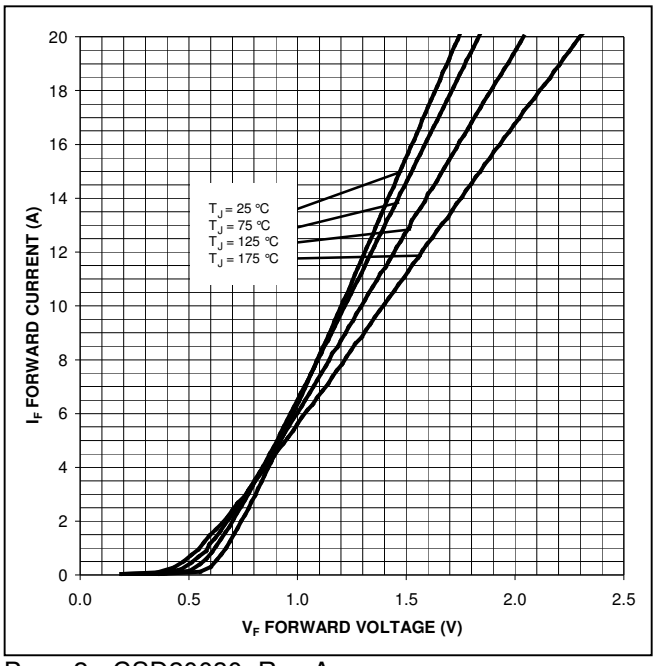


Figure 2. Reverse Characteristics

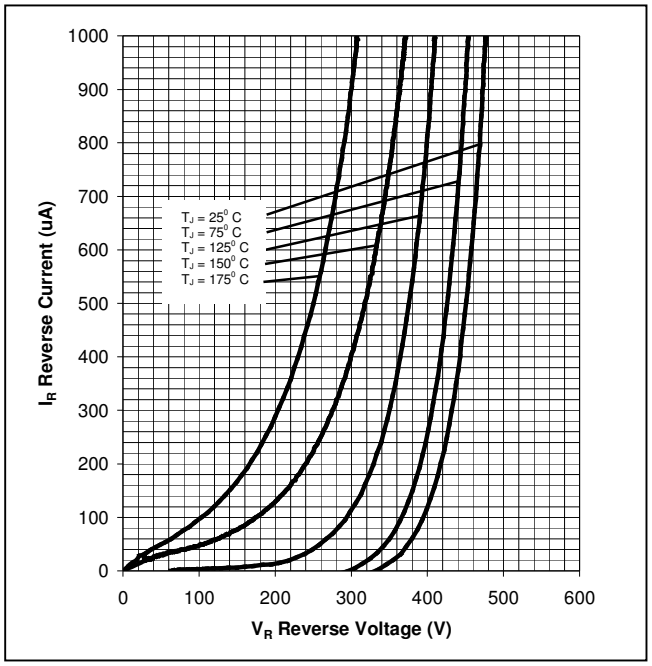


Figure 3. Current Derating

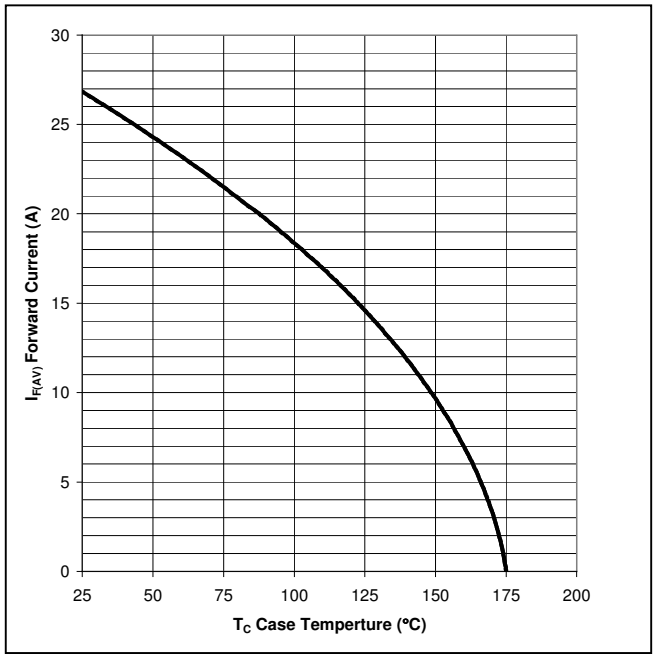


Figure 4. Capacitance vs. Reverse Voltage

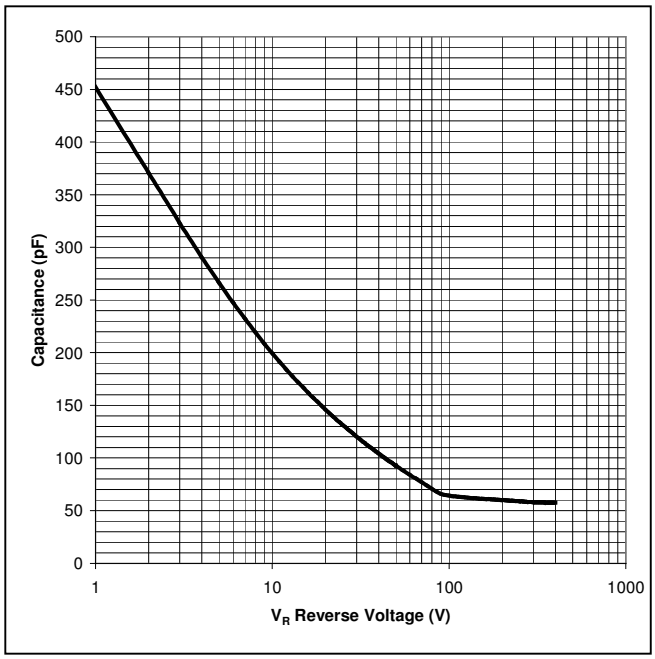
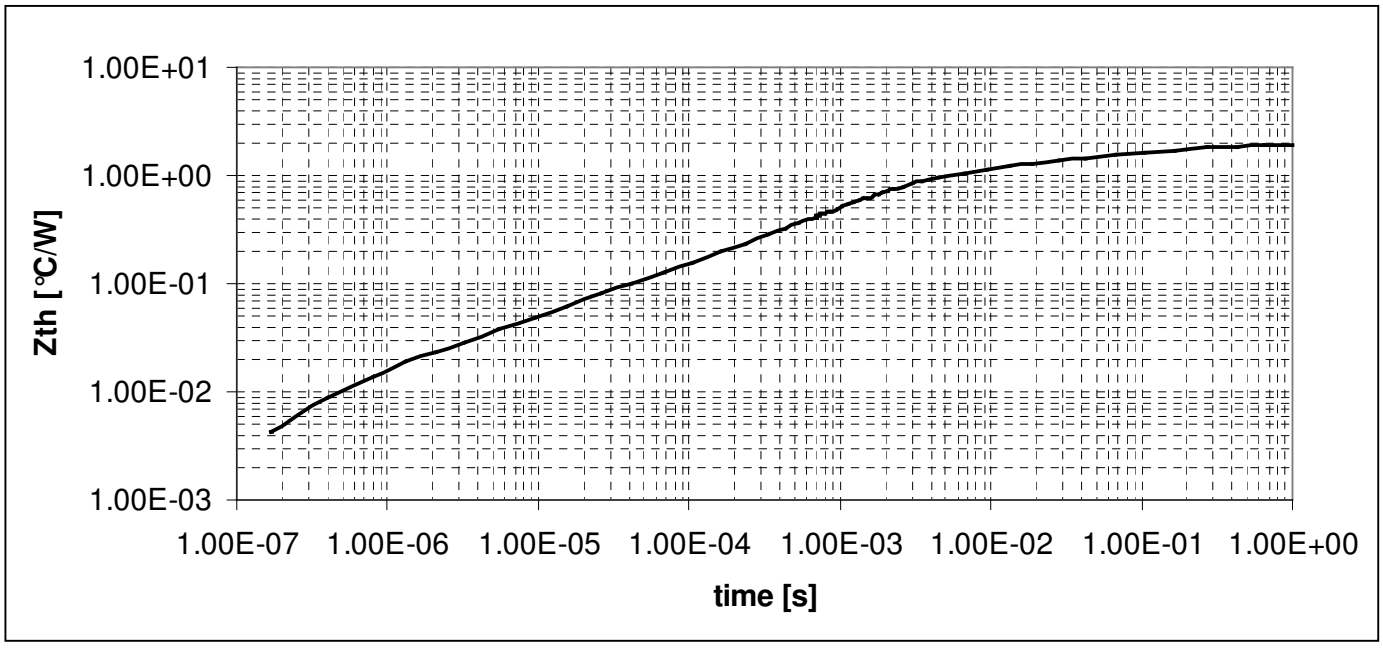
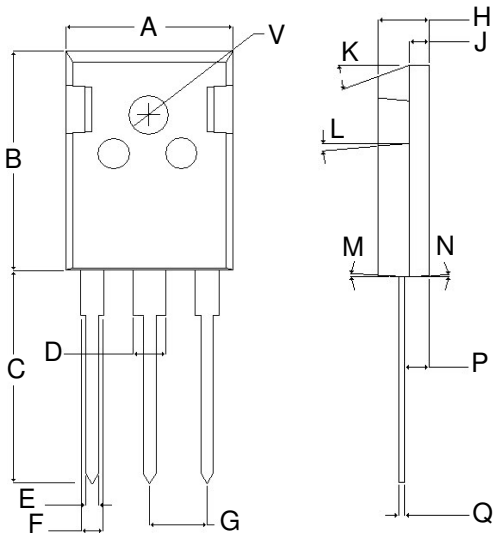


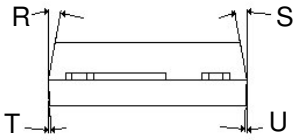
Figure 5. Transient Thermal Impedance



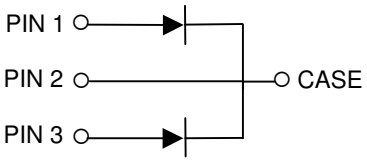
Package Dimensions

Package TO-247-3





POS	Inches		Millimeters	
	Min	Max	Min	Max
A	.621	.631	15.773	16.027
B	.820	.830	20.823	21.077
C	.789	.799	20.053	20.307
D	.120	.126	3.044	3.196
E	.047	.052	1.200	1.327
F	.075	.084	1.903	2.132
G	.215 TYP		5.450 TYP	
H	.193	.203	4.903	5.157
J	.075	.081	1.904	2.056
K	19°	21°	19°	21°
L	4°	6°	4°	6°
M	2°	4°	2°	4°
N	2°	4°	2°	4°
P	.093	.097	2.349	2.451
Q	.024	.030	.600	.752
R	9°	11°	9°	11°
S	9°	11°	9°	11°
T	2°	4°	2°	4°
U	2°	4°	2°	4°
V	.140	.144	3.560	3.660



Part Number	Package	Marking
CSD20030D	TO-247-3	CSD20030

This product has not been designed or tested for use in, and is not intended for use in, applications implanted into the human body nor in applications in which failure of the product could lead to death, personal injury or property damage, including but not limited to equipment used in the operation of nuclear facilities, life-support machines, cardiac defibrillators or similar emergency medical equipment, aircraft navigation or communication or control systems, air traffic control systems, or weapons systems.

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