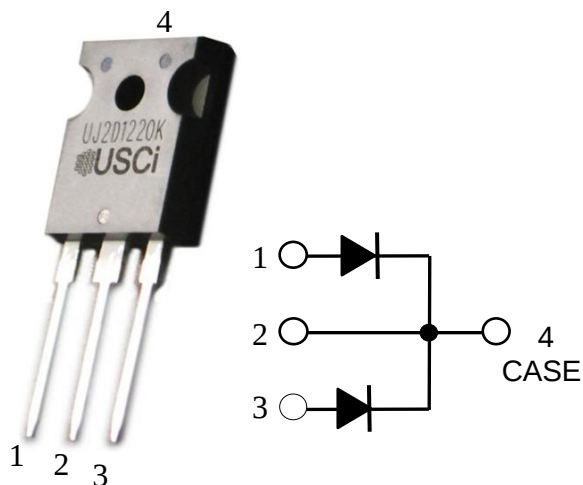


Features

- Positive temperature coefficient for safe operation and ease of paralleling
- 175°C maximum operating junction temperature
- Extremely fast switching not dependent on temperature
- Essentially no reverse or forward recovery

Typical Applications

- Power converters
- Industrial motor drives
- Switching-mode power supplies
- Power factor correction modules



Part Number	Package	Marking
UJ2D1220K	TO-247	UJ2D1220K

Descriptions

United Silicon Carbide, Inc offers the **xR series** of high-performance SiC Schottky diodes. With zero reverse recovery charge and 175°C maximum junction temperature, USCI's diodes are ideally suited for high-frequency and high-efficiency power systems with minimum cooling requirements.

Absolute Maximum Ratings

Parameter	Symbol	Test Conditions	Value (Leg/Device)	Units
DC Blocking Voltage	V_R		1200	V
Repetitive Peak Reverse Voltage, $T_j=25^\circ\text{C}$	V_{RRM}		1200	V
Maximum DC Forward Current	I_F	$T_C = 142^\circ\text{C}$	10/20	A
Non-Repetitive Forward Surge Current	I_{FSM}	$T_C = 25^\circ\text{C}$, 8.3ms Half Sine Pulse	80/160	A
Power Dissipation	P_{Tot}	$T_C = 25^\circ\text{C}$ $T_C = 142^\circ\text{C}$	136/272 30/60	W
Maximum Junction Temperature	$T_{J,max}$		175	$^\circ\text{C}$
Storage Temperature	T_{STG}		-55 to 175	$^\circ\text{C}$
Soldering Temperatures, Wavesoldering only allowed at leads	T_{sold}	1.6mm from case for 10s	260	$^\circ\text{C}$

Electrical Characteristics

$T_J = +25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test Conditions	Value (Leg/Device)			Units
			Min	Typ	Max	
Forward Voltage	V_F	$I_F = 20\text{A}, T_J = 25^\circ\text{C}$	-	1.5	1.7	V
		$I_F = 20\text{A}, T_J = 175^\circ\text{C}$	-	2.5	3	
Reverse Current	I_R	$V_R = 1200\text{V}, T_J = 25^\circ\text{C}$	-	30/60	250/500	μA
		$V_R = 1200\text{V}, T_J = 175^\circ\text{C}$	-	60/120	800/1600	
Total Capacitive Charge	Q_C	$V_R = 600\text{V}, I_F = 20\text{A},$ $di/dt = 250\text{A}/\mu\text{s}$		35/70		nC
Total Capacitance	C	$V_R = 1\text{V}, f = 1\text{MHz}$		500/1000		pF
		$V_R = 300\text{V}, f = 1\text{MHz}$		50/100		
		$V_R = 600\text{V}, f = 1\text{MHz}$		36/72		

Thermal characteristics

Parameter	symbol	Test Conditions	Value (Leg/Device)			Units
			Min	Typ	Max	
Thermal Resistance	$R_{\theta JC}$				1.1/0.55	$^\circ\text{C}/\text{W}$

Typical Performance (Per Leg)

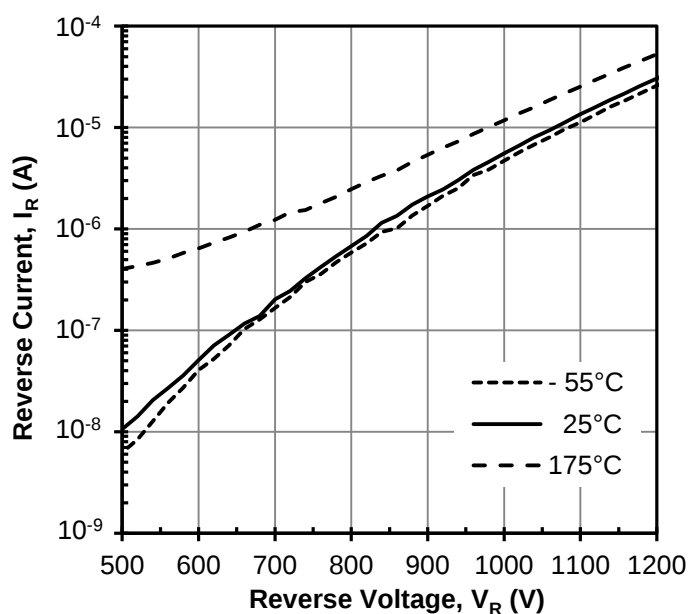


Figure 1 Typical reverse characteristics

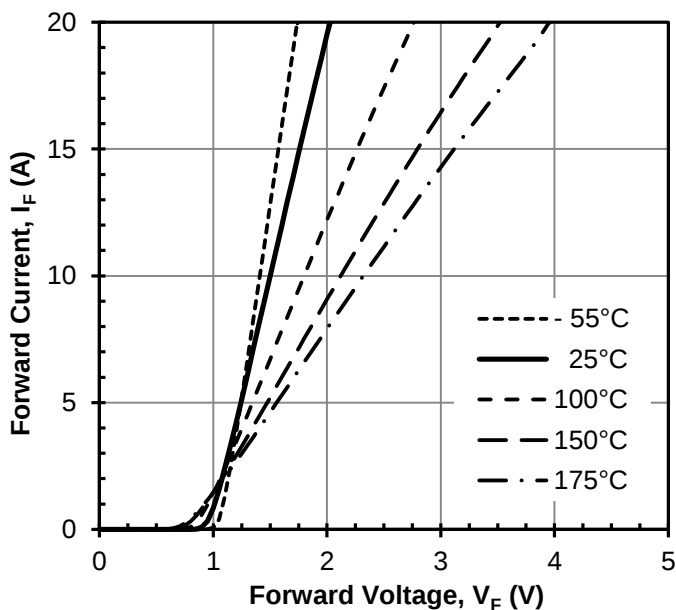


Figure 2 Typical forward characteristics

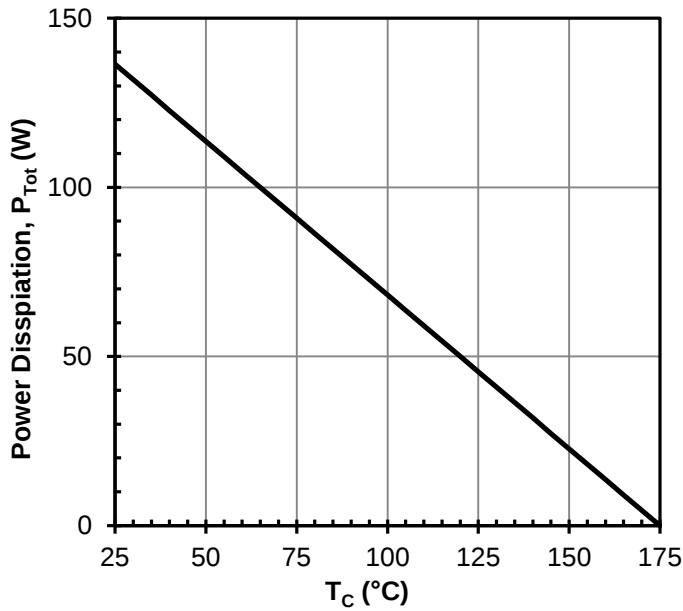


Figure 3 Power dissipation

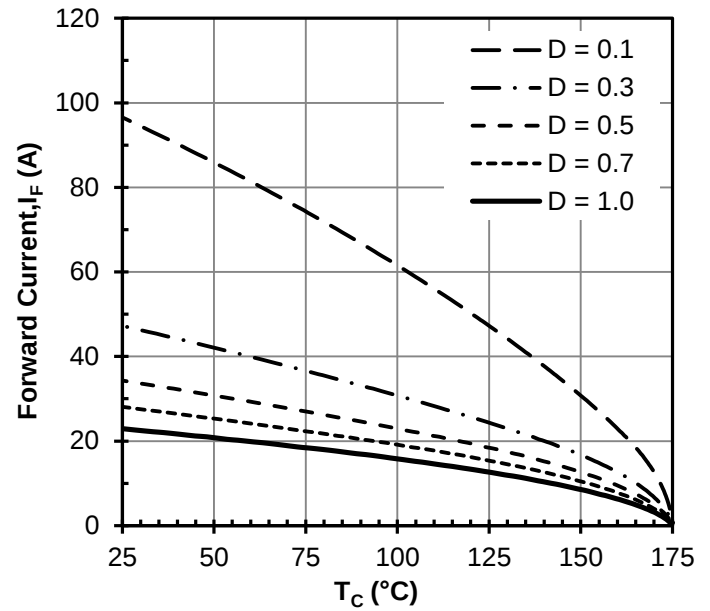


Figure 4 Diode forward current

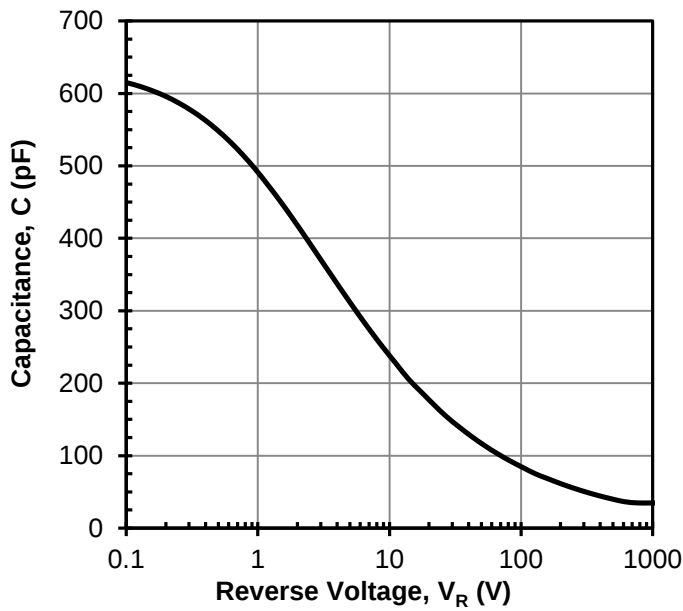


Figure 5 Capacitance vs. reverse voltage

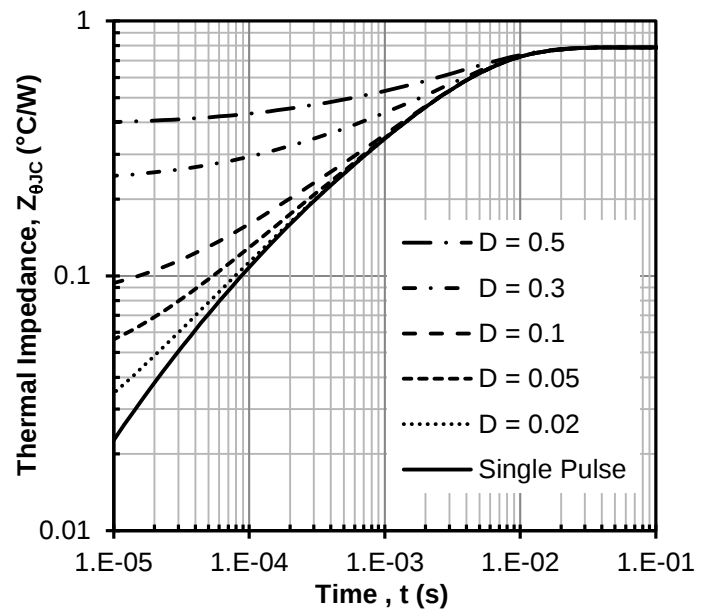
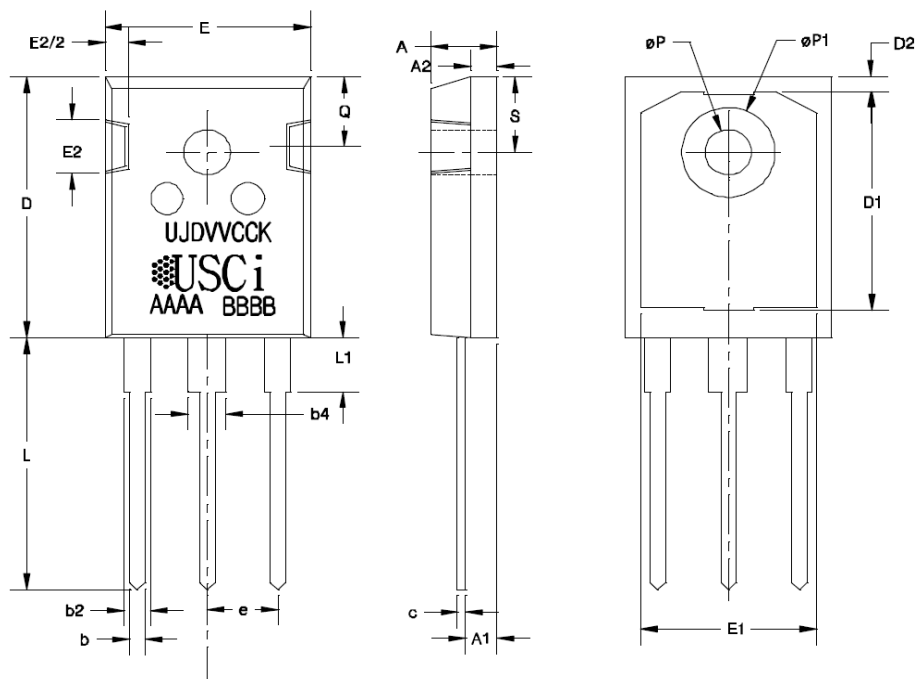


Figure 6 Transient thermal impedance

Mechanical Characteristics



Symbols	Min	Nom	Max
A	0.185	0.198	0.209
A1	0.087	0.095	0.102
A2	0.059	0.078	0.098
b	0.039	0.047	0.055
b2	0.075	0.080	0.094
b4	0.102	0.118	0.135
c	0.015	0.024	0.035
D	0.819	0.823	0.845
D1	0.515	0.690	
D2	0.020	0.047	0.053
E	0.610	0.626	0.640
E1	0.530	0.552	
E2	0.139	0.144	0.149
e		.215 BSC	
L	0.780	0.794	0.800
L1		0.170	0.177
P	0.140	0.142	0.144
P1	0.278	0.283	0.288
Q	0.212	0.221	0.244
S		0.239 BSC	

Mounting	M3/M3.5	1Nm
Torque	Screw	8.8 lbf-in

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