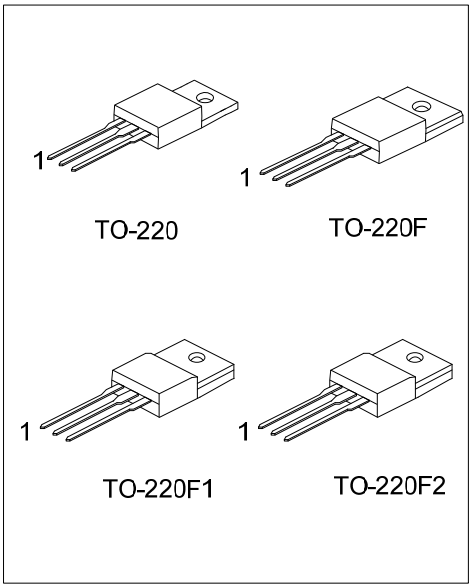
SFR1020C

DIODE

ULTRA-FAST RECOVERY RECTIFIER DIODES



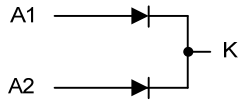
■ DESCRIPTION

UTC **SFR1020C** is dual center tap rectifier suited for high frequency Switching Mode PowerSupplies applications.

■ FEATURES

* High Surge Current Capability
* Suited For Smps, DC ~ DC Converters
* Low Forward And Reverse Recovery Time
* Low Losses

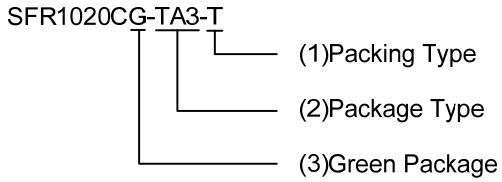
■ CONNECTION DIAGRAM



■ ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
SFR1020CL-TA3-T	SFR1020CG-TA3-T	TO-220	A1	K	A2	Tube
SFR1020CL-TF1-T	SFR1020CG-TF1-T	TO-220F1	A1	K	A2	Tube
SFR1020CL-TF2-T	SFR1020CG-TF2-T	TO-220F2	A1	K	A2	Tube
SFR1020CL-TF3-T	SFR1020CG-TF3-T	TO-220F	A1	K	A2	Tube

Note: Pin Assignment: A: Anode K: Cathode

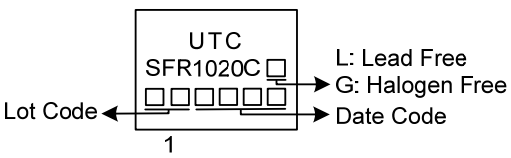


(1) T: Tube

(2) TA3: TO-220, TF2: TO-220F2, TF1: TO-220F1, TF3: TO-220F

(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATING (limiting values, per leg)

PARAMETER	SYMBOL	RATINGS	UNIT
Repetitive Peak Reverse Voltage	V_{RRM}	200	V
RMS Forward Current(Total)	$I_{F(RMS)}$	10	A
Average Forward Current δ= 0.5 T_C=125°C (Per leg)	$I_{F(AV)}$	5	A
Surge Non Repetitive Forward Current, t_p=10ms Sinusoidal	I_{FSM}	50	A
Storage temperature range	T_{STG}	-60 ~ +150	°C

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
2. The device is guaranteed to meet performance specification within 0°C ~ +70°C operating temperature range and assured by design from –20°C ~ +85°C.

■ ELECTRICAL CHARACTERISTICS (per leg)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Reverse Leakage Current (Note1)	I_R	V_R=V_{RRM}, T_J=25°C			50	μA
		V_R=V_{RRM}, T_J=100°C			0.6	mA
Forward Voltage Drop (Note2)	V_F	I_F=5.0A, T_J=25°C			1.1	V
		I_F=5.0A, T_J=125°C		0.82	1.0	V

Notes: 1.tp = 5 ms, δ< 2 %.
2. tp = 380 μs, δ< 2 %.
To evaluate the conduction losses use the following equation: $P = 0.78\times I_{F(AV)} + 0.042 \times IF^2$ (RMS).

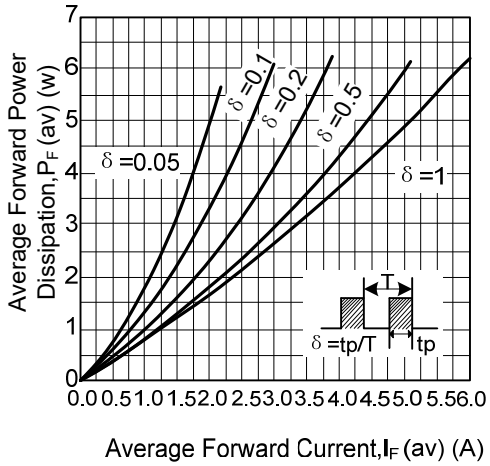
■ RECOVERY CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Reverse Recovery Time	t_{rr}	I_F= 0.5A, dI_F/d_t= 50A/μs, V_R=30V T_J= 25°C			40	ns
Reverse Recovery Time	t_{rr}	I_F= 1A, dI_F/d_t= 50A/μs, V_R =30V T_J= 25°C		33		ns

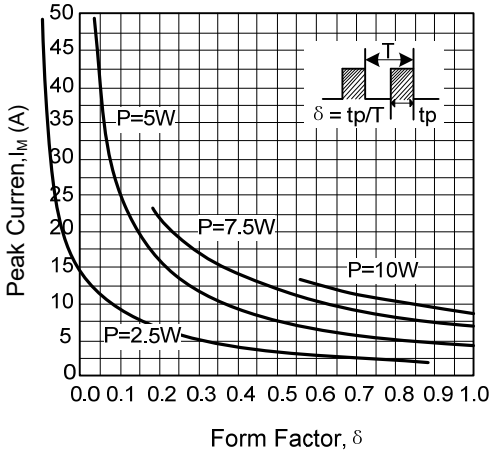
Notes: 1. When diodes 1 and 2 are used simultaneously.
2. ΔT_J (diode 1) = P(diode 1)×$R_{th(j-c)}$(per leg) + P(diode 2) × $R_{th(c)}$.

■ TYPICAL CHARACTERISTICS

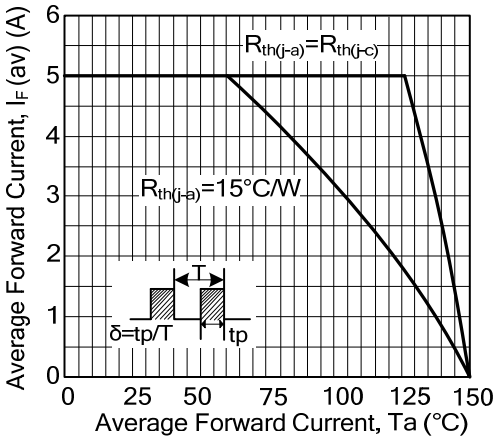
Average Forward Power Dissipation Versus Average Forward Current (Per Diode)



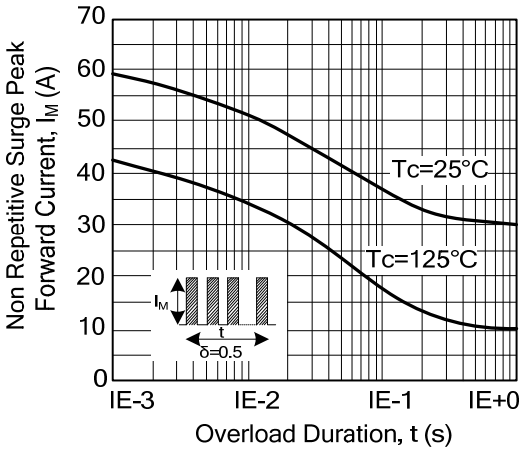
Peak Current Versus Form Factor (Per Diode)



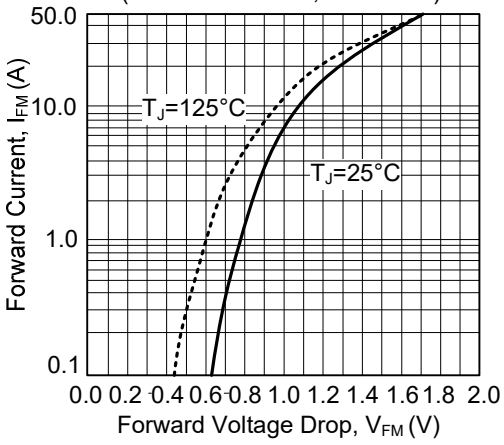
Average Forward Current Versus Ambient Temperature



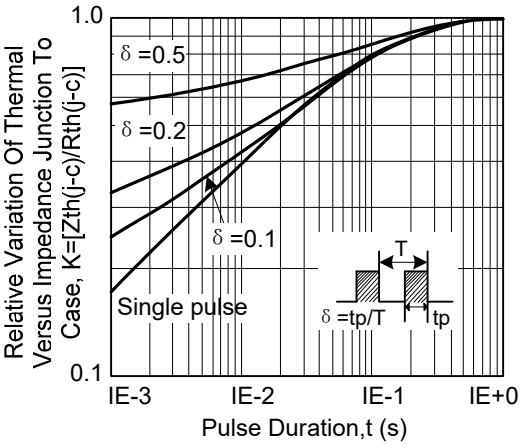
Non Repetitive Surge Peak Forward Current Versus Overload Duration



Forward Voltage Drop Versus Forward Current (Maximum Values, Per Diode)

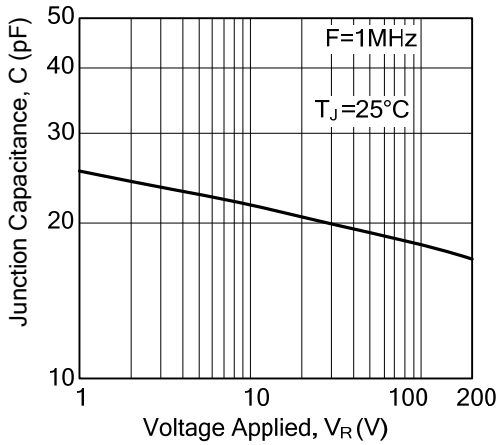


Relative Variation Of Thermal Versus Impedance Junction To Case Versus Pulse Duration

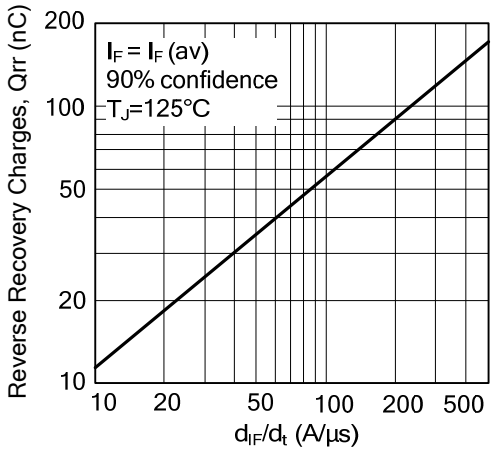


■ TYPICAL CHARACTERISTICS (Cont.)

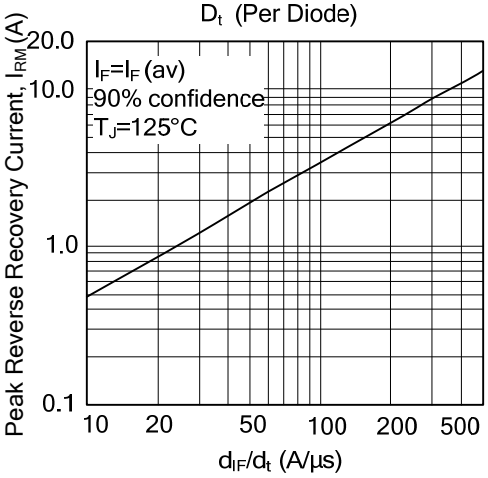
Junction Capacitance Versus Reverse Voltage Applied (Typical Values, Per Diode)



Reverse Recovery Charges Versus D_{if}/D_t (Per Diode)



Peak Reverse Recovery Current Versus D_{if}/D_t (Per Diode)



Dynamic Parameters Versus Junction Temperature (Per Diode)