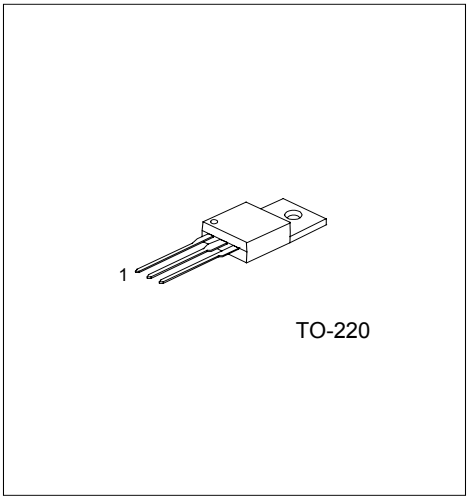
ULTRA-FAST RECOVERY RECTIFIER DIODES



1: A1 2: K 3: A2
*Pb-free plating product number: SFR1020L

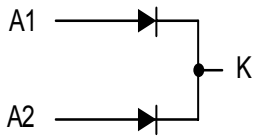
DESCRIPTION

SFR1020 is dual center tap rectifier suited for high frequency Switching Mode Power Supplies applications.

FEATURES

* HIGH SURGE CURRENT CAPABILITY
* SUITED FOR SMPS, DC ~ DC CONVERTERS
* LOW FORWARD AND REVERSE RECOVERY TIME
* LOW LOSSES

CONNECTION DIAGRAM



ABSOLUTE MAXIMUM RATINGS

(limiting values, per diode)

PARAMETER	SYMBOL	RATINGS	UNIT
Repetitive peak reverse voltage	V_{RRM}	200	V
RMS forward current	$I_{F(RMS)}$	10	A
Average forward current δ= 0.5 T_C=125℃ (Per diode)	$I_{F(AV)}$	5	A
Surge non repetitive forward current tp=10ms sinusoidal	I_{FSM}	50	A
Storage temperature range	T_{stg}	-60 ~ +150	℃

ELECTRICAL CHARACTERISTICS

(per diode)

PARAMETER	SYMBOL	TEST CONDITONS		MIN	TYP	MAX	UNIT
Reverse leakage current	I_R *	T_j = 25℃	$V_R = V_{RRM}$			50	μA
		T_j = 100℃				0.6	mA
Forward voltage drop	V_F **	T_j = 125℃	I_F= 5 A		0.8	0.99	V
		T_j = 125℃	I_F= 10 A		0.95	1.20	
		T_j = 25℃	I_F = 10 A			1.25	

* tp = 5 ms, δ< 2 %

** tp = 380 μs, δ< 2 %

To evaluate the conduction losses use the following equation: $P = 0.78 \times I_{F(AV)} + 0.042 \times I_F^2(RMS)$

RECOVERY CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Reverse recovery time	t_{rr}	T_j = 25℃, I_F = 0.5A , I_{rr} = 0.25A , I_R = 1A			30	ns
Formard recovery time	t_{fr}	T_j = 25℃, I_F= 1A, dI_F/d_t = 50 A/μs $V_{FR} = 1.1 \times V_{F\ max}$		20		ns
	V_{FP}	T_j = 25℃, I_F= 1A, dI_F/d_t = 50 A/μs		3		V

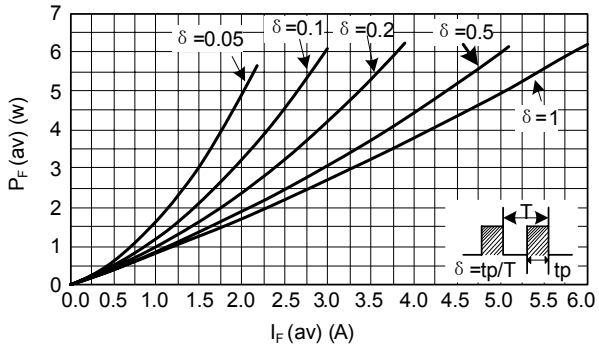
THERMAL RESISTANCES

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to case	Per diode	$R_{th\ (j-c)}$	4.0	℃/W
	Total		2.4	
Coupling		$R_{th\ (c)}$	0.7	

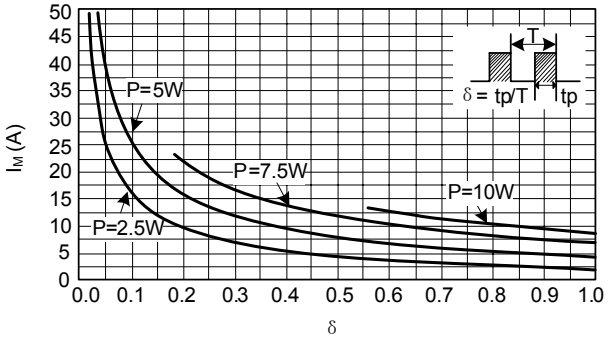
When diodes 1 and 2 are used simultaneously :

ΔT_j (diode 1) = P(diode 1)$\times R_{th(j-c)}$(Per diode) + P(diode 2) $\times$ $R_{th(c)}$

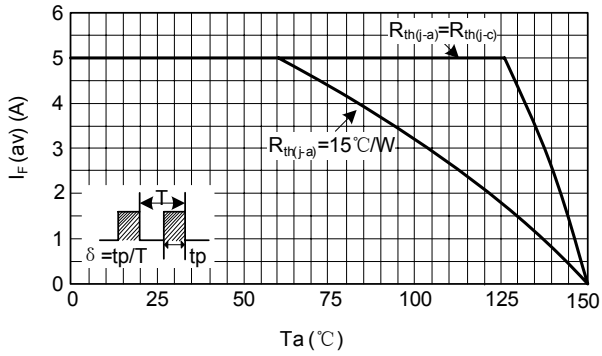
Average forward power dissipation versus average forward current (per diode)



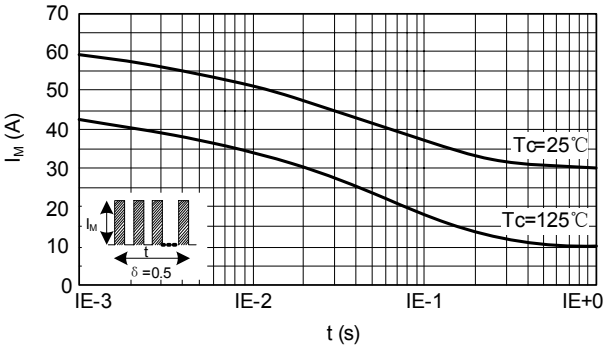
Peak current versus form factor (per diode)



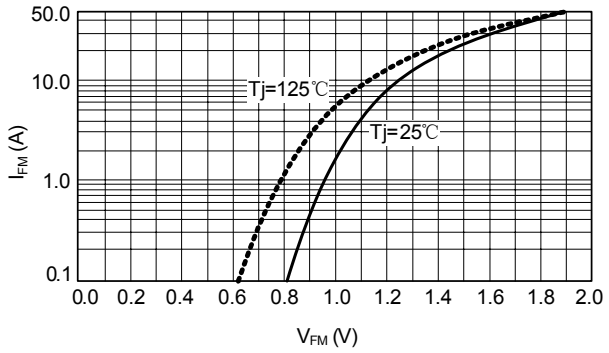
Average forward current versus ambient temperature



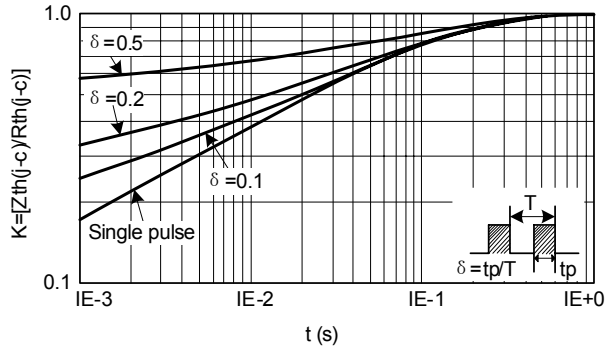
Non repetitive surge peak forward current versus overload duration



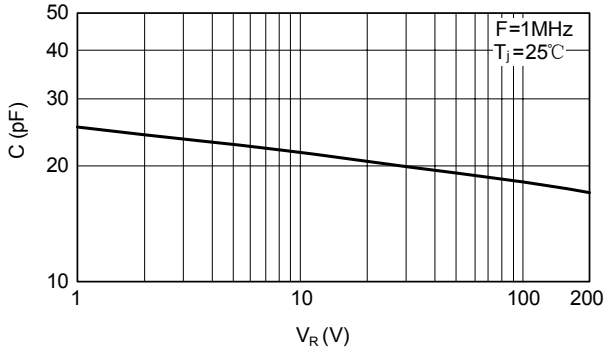
Forward voltage drop versus forward current (maximum values, per diode)



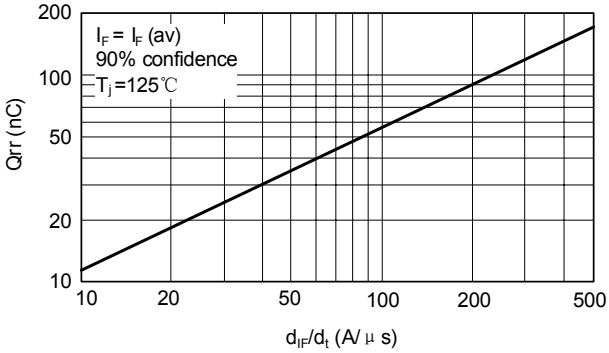
Relative variation of thermal versus impedance junction to case versus pulse duration



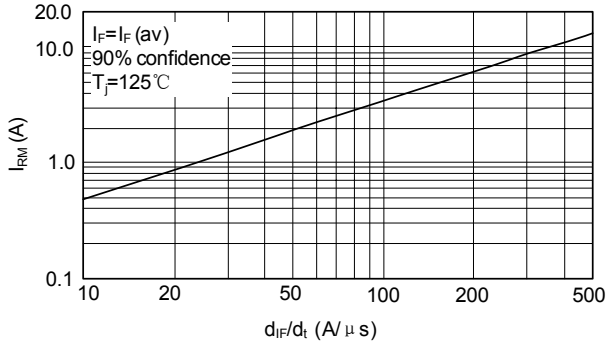
Junction capacitance versus reverse voltage applied (typical values, per diode).



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)