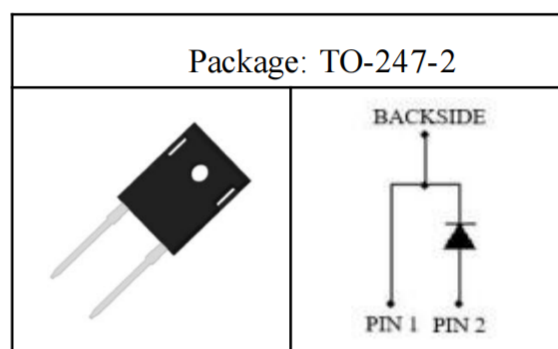


Features

- ★ Zero forward recovery voltage
- ★ Zero reverse recovery current
- ★ Excellent surge current capability
- ★ Temperature independent switching
- ★ Positive temperature coefficient on V_F
- ★ High frequency operation

Product Summary

V_{RRM}	Q_C	$I_F(TC=150^{\circ}C)$
650V	204nC	40A



Applications

- ★ Motor drives
- ★ Uninterruptible power supplies
- ★ Photovoltaic inverter
- ★ Switch mode power supplies (SMPS)



Maximum Ratings

Symbol	Parameter	Test conditions	Value	Unit
V_{RRM}	Repetitive peak reverse voltage		650	V
V_{RSM}	Surge peak reverse voltage		650	V
$I_{F(AVG)}$	Average forward current	$T_C=145^{\circ}C$	40*	A
I_{FSM}	Non-Repetitive forward surge current	$T_C=25^{\circ}C$, $t_p=10ms$, Half Sine Wave	272	A
P_{tot}	Power dissipation	$T_C=25^{\circ}C$ $T_C=110^{\circ}C$	452* 196*	W
T_j	Operating junction temperature		-55~175	$^{\circ}C$
T_{stg}	Storage temperature		-55~175	$^{\circ}C$

* Assumes thermal resistance of 0.332 $^{\circ}C/W$ or less

Electrical Characteristics

Static Characteristics

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
V_{DC}	DC blocking voltage	$T_j=25^{\circ}C$	650			V
V_F	Diode forward voltage	$I_F=40A, T_j=25^{\circ}C$ $I_F=40A, T_j=175^{\circ}C$		1.48 2.17		V
I_R	Reverse current	$V_R=650V, T_j=25^{\circ}C$ $V_R=650V, T_j=175^{\circ}C$		8 54		μA

AC Characteristics

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
Q_C	Total capacitive charge	$V_R=800V, T_j=25^{\circ}C$ $Q_C = \int_0^V R \ C(V)dV$		204		nC
C	Total capacitance	$V_R=1V \ f=1MHz$ $V_R=400V \ f=1MHz$ $V_R=800V \ f=1MHz$		2270 192 144		pF
E_C	Capacitance stored energy	$V_R=800V$		105		μJ

Typical Performance

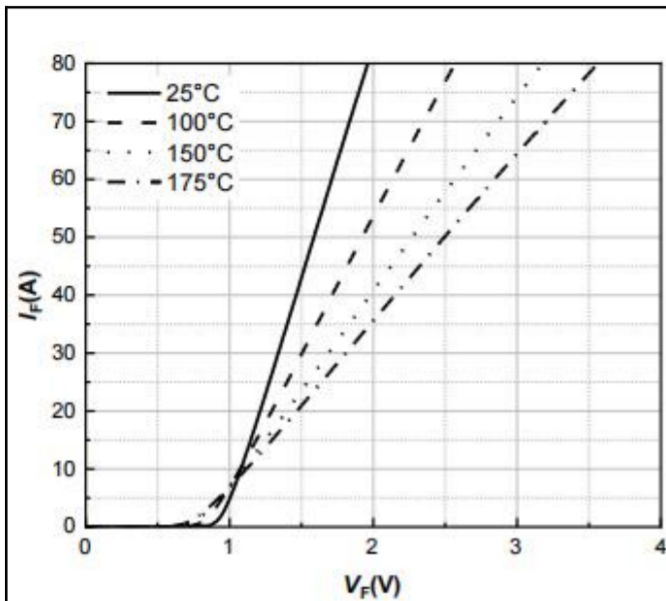


Figure.1 Typical forward characteristics

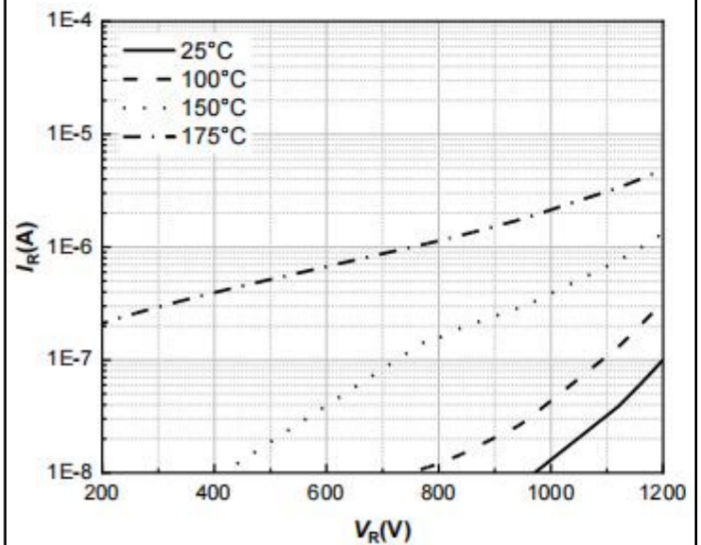


Figure.2 Typical reverse current as function of reverse voltage

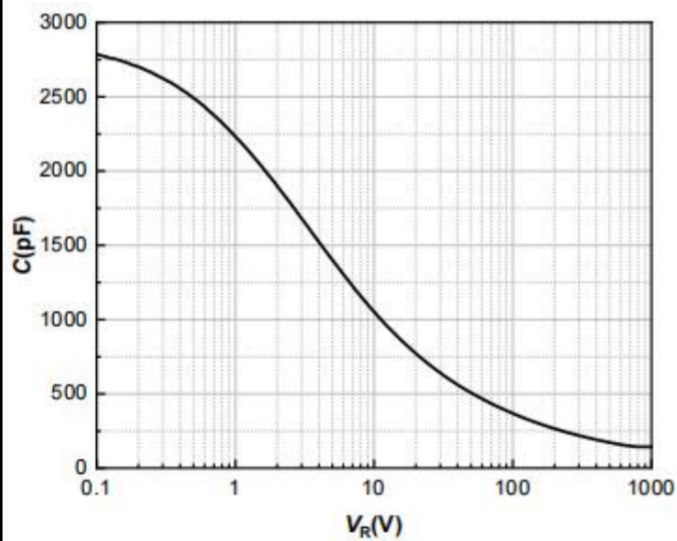


Figure.3 Typical capacitance as function of reverse voltage, $C=f(V_R)$; $T_J=25^\circ\text{C}$; $f=1\text{ MHz}$

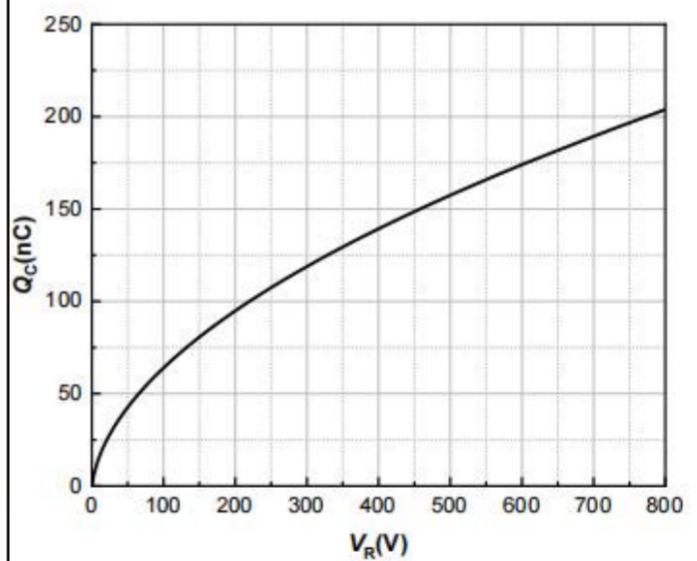


Figure.4 Typical reverse charge as function of reverse voltage

Package Outlines

