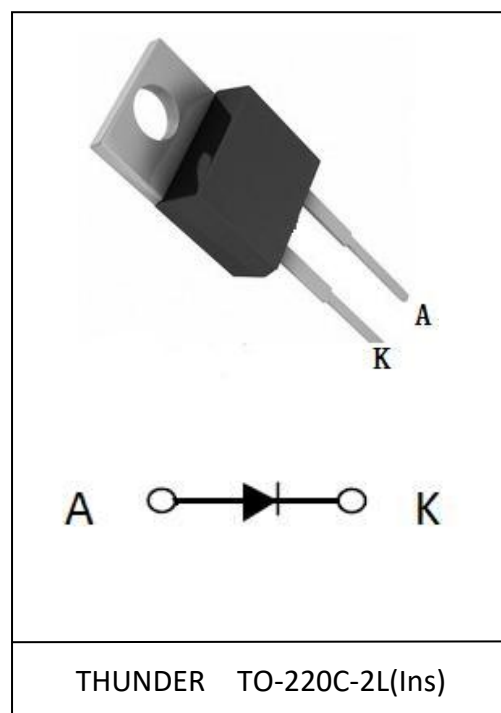


Features

- Low Forward Voltage Drop
- High-Speed Switching
- Positive Temperature Coefficient on V_F
- Temperature-Independent Switching Behavior
- Insulated Package

V_R	650 V
I_F	20 A
Q_C	52 nC



Absolute Maximum Ratings (T_j=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Value		Unit
			Min	Typ	
V_{RRM}	Repetitive Peak Reverse Voltage	$T_C=25^{\circ}\text{C}$	-	650	V
V_{DC}	DC Blocking Voltage	$I_R=1\text{mA}$, $T_C=25^{\circ}\text{C}$	650	894	V
I_F	Continuous Forward Current	$T_C=25^{\circ}\text{C}$	-	24	A
		$T_C=115^{\circ}\text{C}$	-	20	A
		$T_C=125^{\circ}\text{C}$	-	14	A
I_{FSM}	Non-repetitive Peak Forward Surge Current	$T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Wave (After test : $V_F \geq 0.5\text{V}@I_F=1\text{mA}$; $V_R \geq 500\text{V}@I_R=1\text{mA}$; $I_R \leq 5\text{mA}@V_R=650\text{V}$)	107	134	A
		$T_C=125^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Wave (After test : $V_F \geq 0.5\text{V}@I_F=1\text{mA}$; $V_R \geq 500\text{V}@I_R=1\text{mA}$; $I_R \leq 5\text{mA}@V_R=650\text{V}$)	98	123	A
T_{stg}	Storage Temperature		-55 to 175		°C
T_j	Operating junction temperature range		-55 to 175		°C

Electrical Characteristics

Symbol	Parameter	Conditions	Value			Unit	Note
			Min	Typ	Max		
V _F	Forward Voltage	I _F =20A, T _j =25℃	-	1.37	1.5	V	Fig.1
		I _F =20A, T _j =125℃	-	1.61	-	V	
		I _F =20A, T _j =175℃	-	1.79	-	V	
I _R	Reverse Current	v _R =650V, T _j =25℃	-	0.03	5	μA	Fig.2
		v _R =650V, T _j =125℃	-	0.16	-	μA	
		v _R =650V, T _j =175℃	-	0.76	-	μA	
Q _c	Total Capacitive Charge	v _R =400V, T _j =25℃	-	52	-	nC	Fig.3
C	Total Capacitance	f=1 MHz, V _R =0V, T _j =25℃	-	995	-	pF	Fig.4
		f=1 MHz, V _R =200V, T _j =25℃	-	95	-	pF	
		f=1 MHz, V _R =400V, T _j =25℃	-	92	-	pF	
E _c	Capacitance Stored Energy	v _R =400V, T _j =25℃	-	7.9	-	μJ	

Thermal Characteristics

Symbol	Paramter	Typ	Unit
R _{th(j-c)}	Thermal Resistance , Junction to Case	2.2	℃/W

Electrical Characteristic Curves

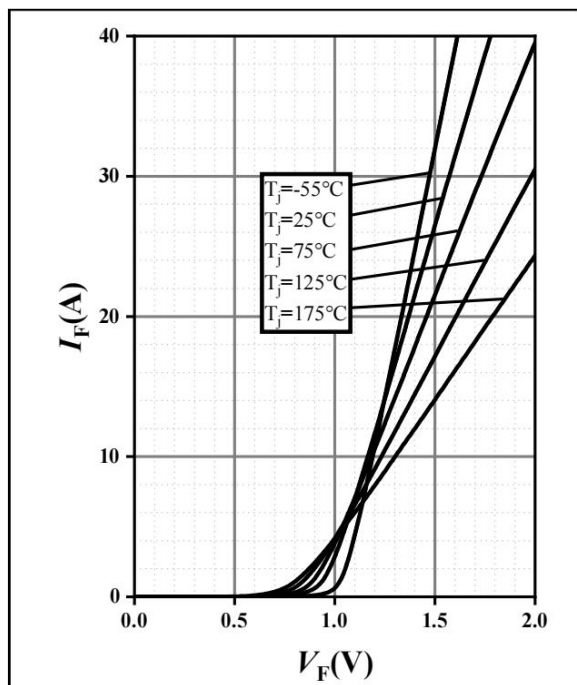


Fig.1 Forward Characteristics

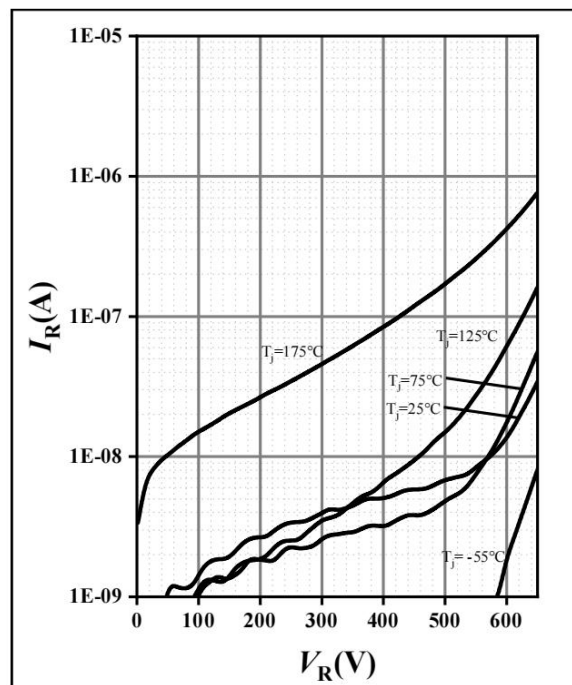


Fig.2 Reverse Characteristics

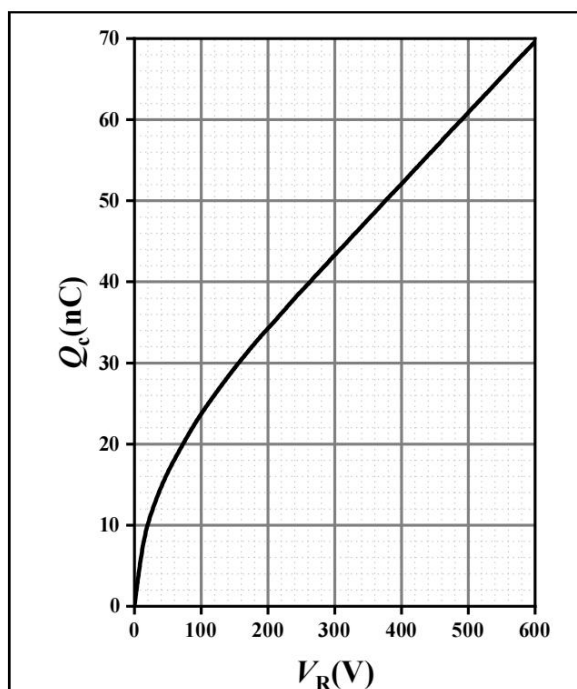


Fig.3 Capacitance Charge vs. Reverse Voltage

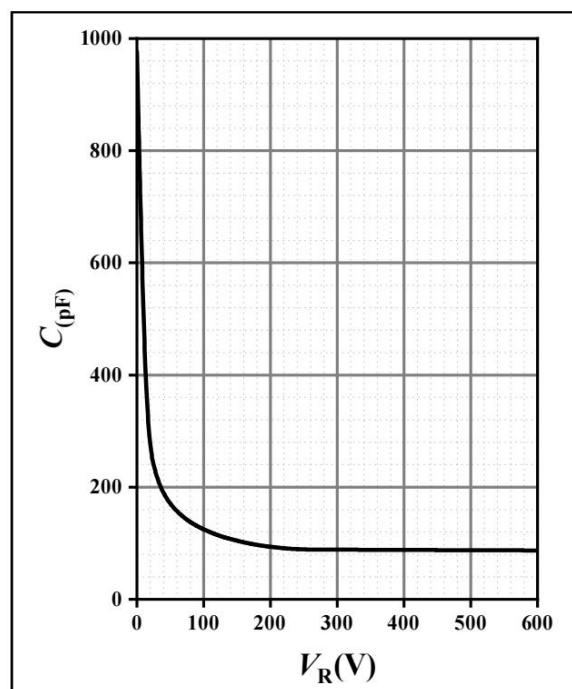
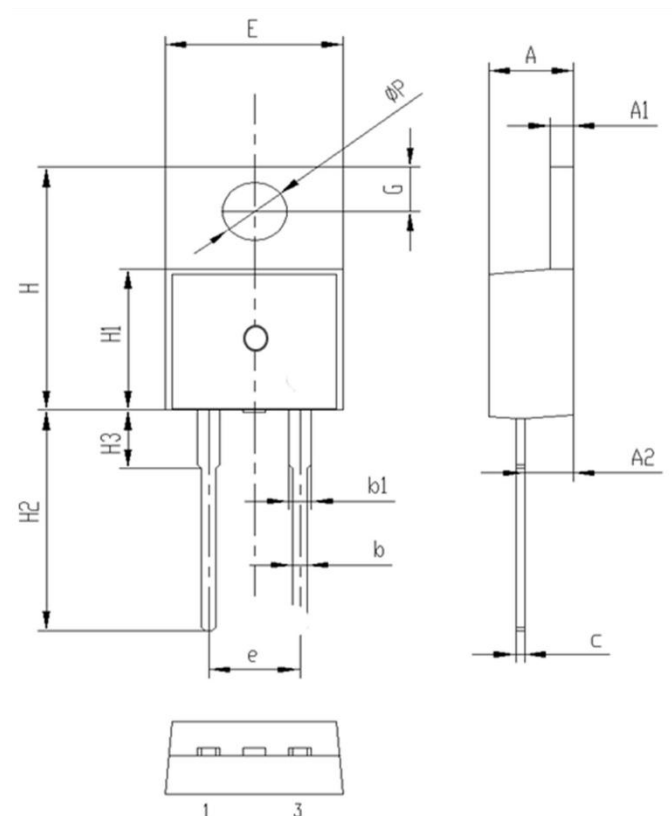


Fig.4 Capacitance vs. Reverse Voltage

Package Information

TO-220C-2L Ins PACKAGE



Symbol	Dimensions (millimeters)	
	Min.	Max.
A	4.30	4.70
A1	1.17	1.37
A2	2.20	2.60
b	0.60	1.00
b1	1.17	1.37
c	0.40	0.60
e	4.88	5.28
E	9.80	10.2
H	15.5	15.9
H1	9.00	9.40
H2	12.6	13.6
H3	2.80	3.20
G	2.60	3.00
ΦP	3.40	3.80

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