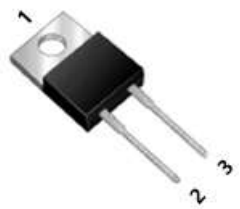
General description

Symbol	Value
V_R @ T_C=25℃	Min 650V
I_F @ T_C=148℃	10A
Q_C	Typ 23nC

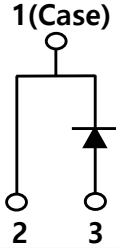
Package



TO-220-2L
9.9x15.7x4.5mm

Features

- Low Forward Voltage
- 175℃ Maximum operating temperature
- Negligible reverse recovery current.
- Fast switching speed



1,2 : Cathode
3 : Anode

Applications

- General Purpose
- Switching mode power supply
- Boot diodes in PFC at DC/DC
- Industrial motor drives
- Motor drivers
- Solar inverters

Maximum Ratings (T_C = 25℃)

Parameter	Symbol	Test Condition	Value	Units
Repetitive Peak Reverse Voltage	V_{RRM}	-	650	V
DC Peak Reverse Voltage	V_R	-	650	V
Continuous Forward Current	I_F	T_C=148℃	10	A
Non-Repetitive Forward Surge Current	I_{FSM}	t_p=10 ms, Half Sine Pulse	50	A
Power Dissipation	P_D	T_C=25˚C	78	W
Operating and Storage Temperature Range	T_j,,T_{stg}	-	-55 to 175	℃

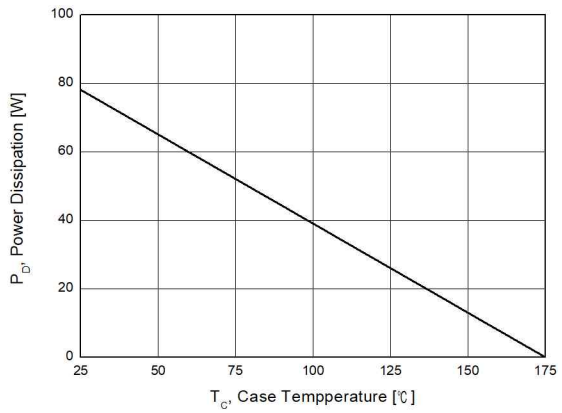
Electrical Characteristics (T_C = 25℃)

Parameter	Symbol	Test Condition	Value			Units
			Min	Typ	Max	
Forward Voltage	V_F	I_F=10A, T_C=25℃	-	1.5	1.8	V
		I_F=10A, T_C=175℃	-	2.0	2.4	V
Reverse Current	I_R	V_R=650V, T_C=25℃	-	20	50	uA
		V_R=650V, T_C=175℃	-	40	500	uA
Total capacitive charge	Q_C	V_R=400V	-	23	-	nC
Total Capacitance	C	V_R=1V, f=1MHz	-	535	-	pF
		V_R=520V, f=1MHz	-	55	-	pF

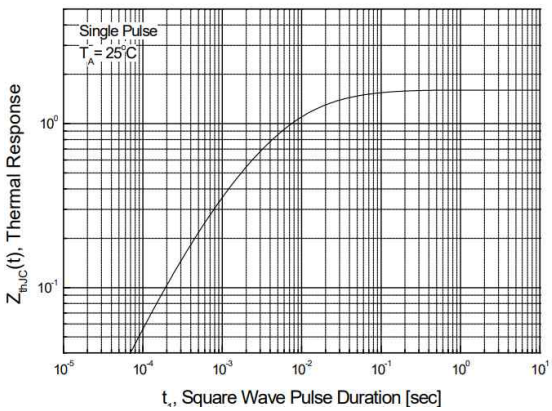
Thermal Characteristics(T_C = 25℃)

Symbol	Parameter	Max	Units
$R_{th(j-c)}$	Junction to Case	1.9	℃/W

T_C – P_D Characteristics

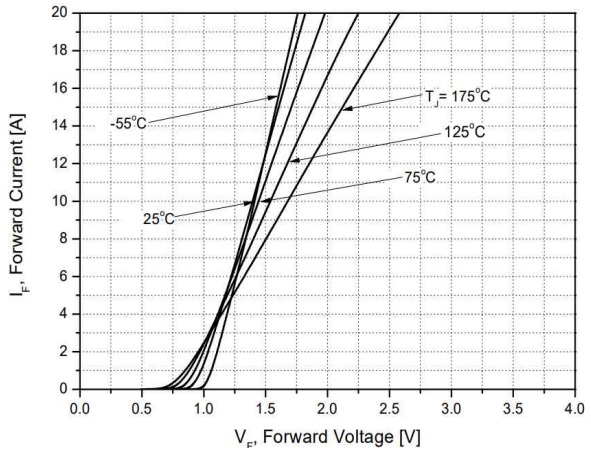


t_P – $Z_{th(j-c)}$ Characteristics

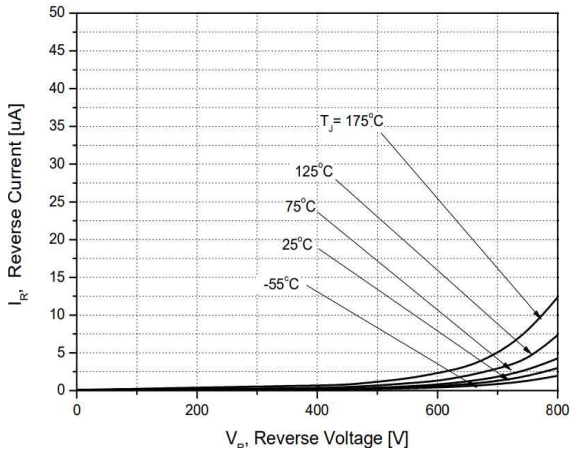


Typical Electrical Characteristics Curves (T_C = 25℃)

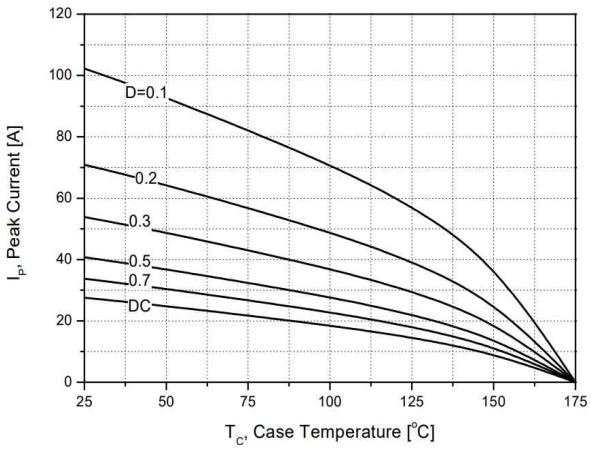
V_F – I_F Characteristics



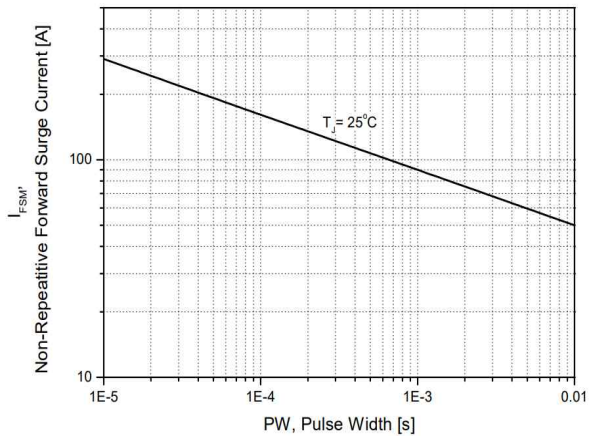
V_R – I_R Characteristics



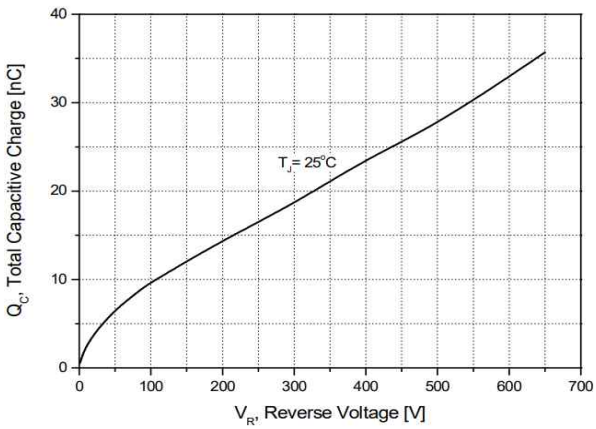
T_C – I_P Characteristics



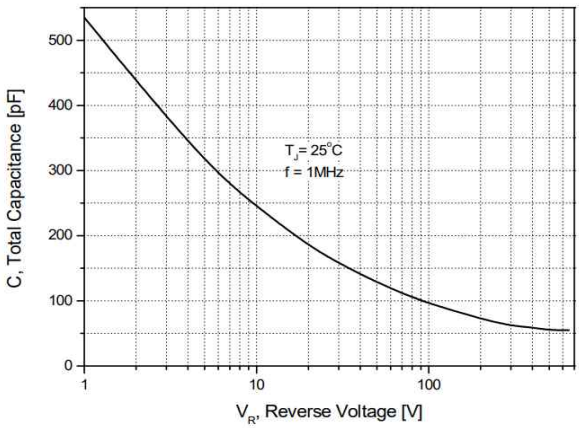
P_W – I_{FSM} Characteristics



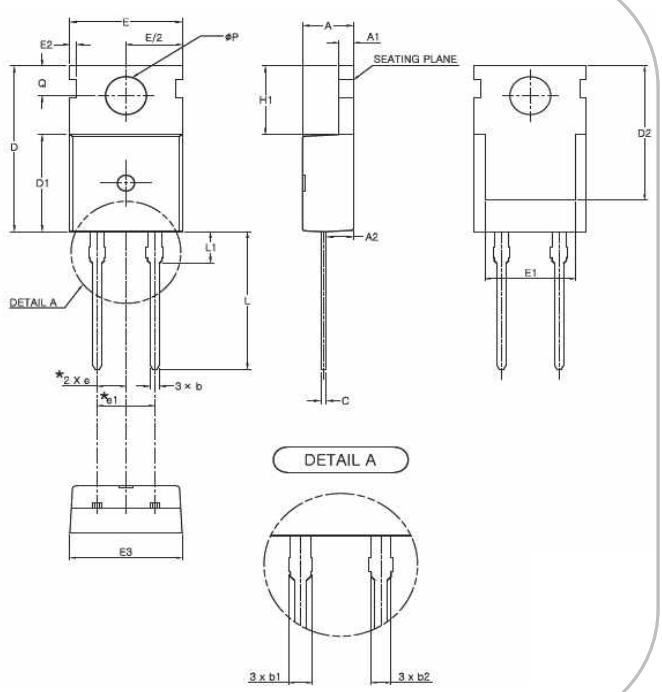
V_R – Q_C Characteristics



V_R – C_T Characteristics

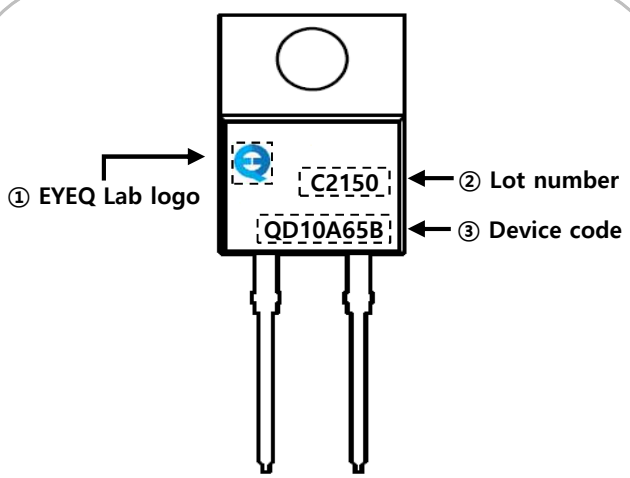


Package Dimensions(TO-220-2L)



SYMBOL	MIN	NOM	MAX
A	4.30	4.50	4.70
A1	1.25	1.30	1.40
A2	2.20	2.40	2.60
b	0.70	0.80	0.90
b1	1.42	1.52	1.62
b2	1.17	1.27	1.37
c	0.45	0.50	0.60
D	15.50	15.70	15.90
D1	9.00	9.20	9.40
D2		(12.70)	
E	9.70	9.90	10.10
E1		(8.00)	
E2		(0.60)	
E3	9.70	9.90	10.10
e		2.54 BSC	
e1		5.08 BSC	
H1	6.30	6.50	6.70
L	12.88	13.08	13.28
L1		(3.00)	
ΦP	3.50	3.60	3.70
Q	2.70	2.80	2.90

Marking Information



① Company Logo

② Lot Number : 21 – 2021 Year , 50 – 50 Week

③ Device Code : Q – EYEQ Lab, D – Diode,
10A – 10A, 65 – 650V