

## General description

Symbol	Value
$V_R @ T_C=25^{\circ}\text{C}$	Min 650V
$I_F @ T_C=135^{\circ}\text{C}$	6A
$Q_C$	Typ 14nC

## Features

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

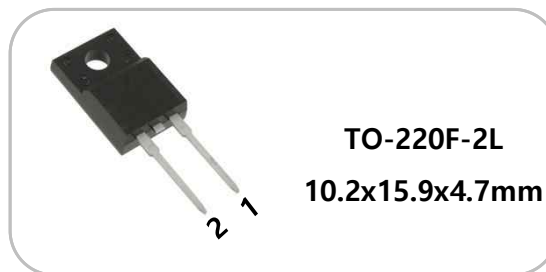
## Applications

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

## Maximum Ratings ( $T_C = 25^{\circ}\text{C}$ )

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	$I_F$	$T_C=135^{\circ}\text{C}$	6	A
Non-Repetitive Forward Surge Current	$I_{FSM}$	$t_p=10\text{ ms}$ , Half Sine Pulse	30	A
Power Dissipation	$P_D$	$T_C=25^{\circ}\text{C}$	30	W
Operating and Storage Temperature Range	$T_{j, T_{stg}}$	-	-55 to 175	$^{\circ}\text{C}$

## Package

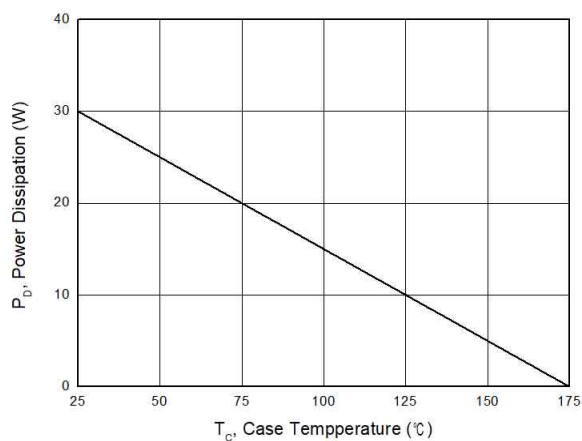
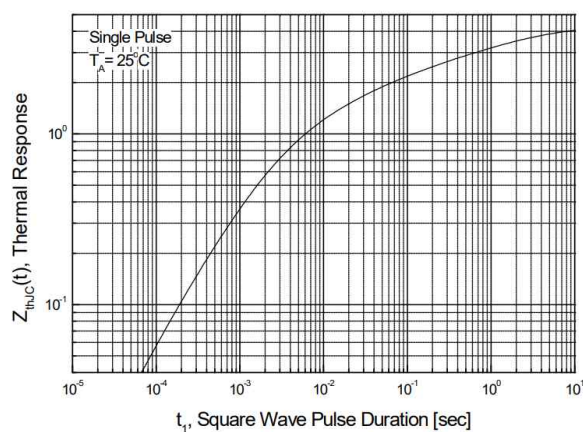


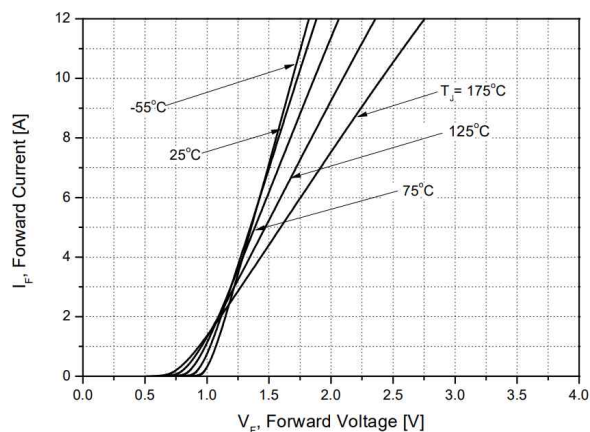
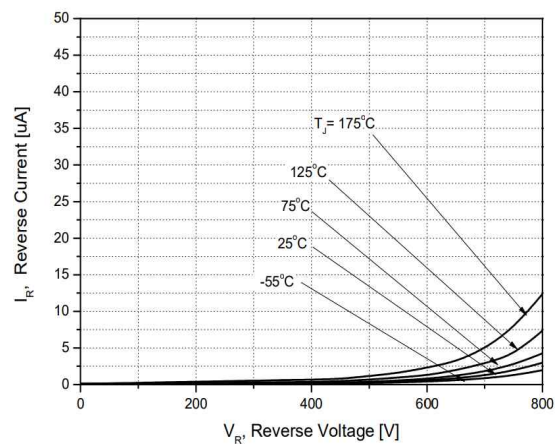
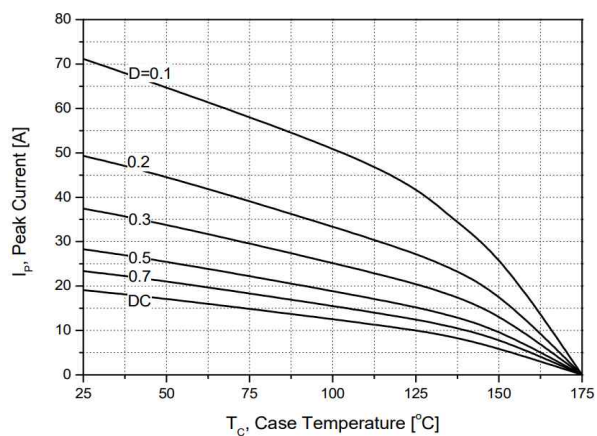
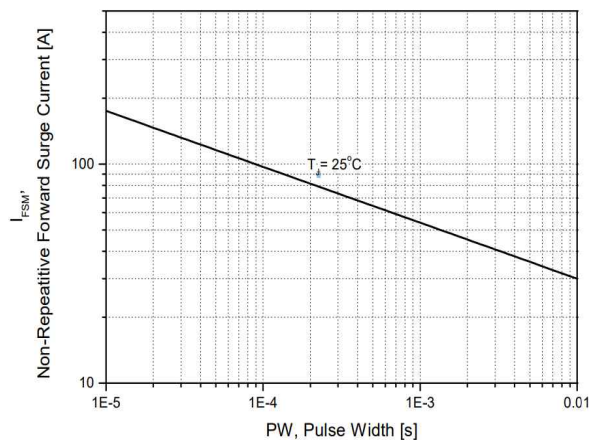
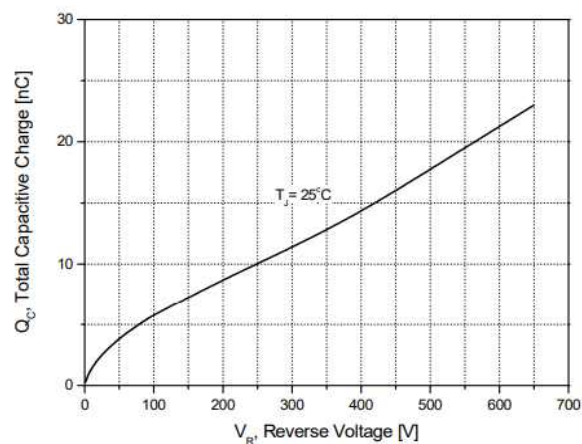
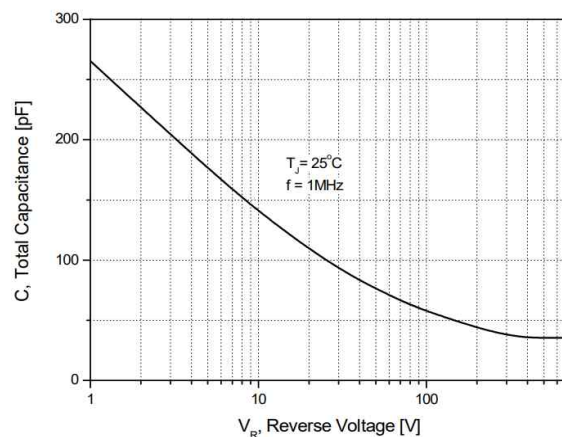

**Electrical Characteristics ( $T_C = 25^\circ\text{C}$ )**

Parameter	Symbol	Test Condition	Value			Units
			Min	Typ	Max	
Forward Voltage	$V_F$	$I_F=6\text{A}, T_C=25^\circ\text{C}$	-	1.5	1.8	V
		$I_F=6\text{A}, T_C=175^\circ\text{C}$	-	2.0	2.4	V
Reverse Current	$I_R$	$V_R=650\text{V}, T_C=25^\circ\text{C}$	-	16	42	$\mu\text{A}$
		$V_R=650\text{V}, T_C=175^\circ\text{C}$	-	32	420	$\mu\text{A}$
Total capacitive charge	$Q_C$	$V_R=400\text{V}$	-	14	-	nC
Total Capacitance	$C$	$V_R=1\text{V}, f=1\text{MHz}$	-	265	-	pF
		$V_R=520\text{V}, f=1\text{MHz}$	-	35	-	pF


**Thermal Characteristics ( $T_C = 25^\circ\text{C}$ )**

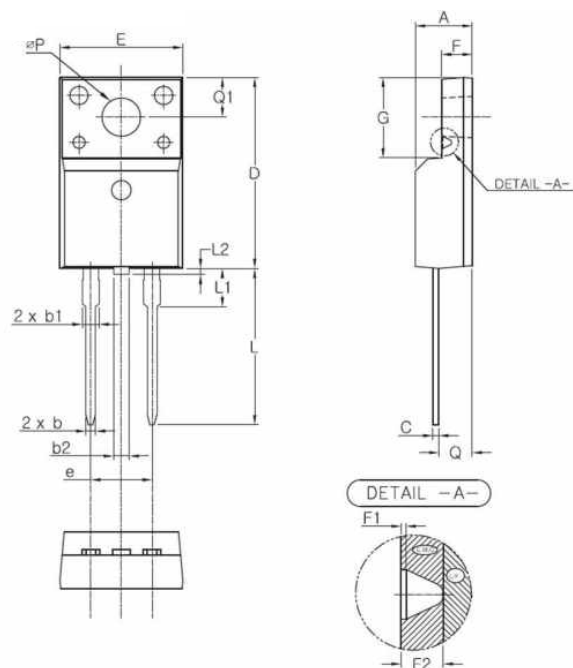
Symbol	Parameter	Max	Units
$R_{th(j-c)}$	Junction to Case	5.0	$^\circ\text{C}/\text{W}$

 $T_C - P_D$  Characteristics

 $t_p - Z_{th(j-c)}$  Characteristics



**Typical Electrical Characteristics Curves ( $T_C = 25^\circ\text{C}$ )**
 $V_F - I_F$  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




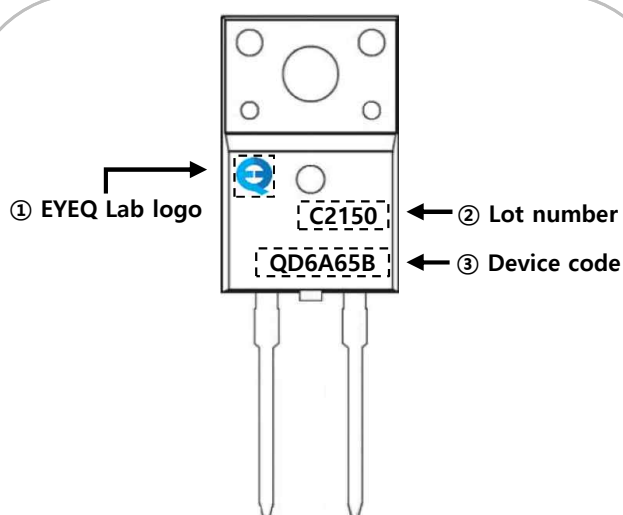
## Package Dimensions(TO-220F-2L)



SYMBOL	MIN	NOM	MAX
A	4.50	4.70	4.90
b	0.70	0.80	0.90
b1	1.33	1.40	1.47
b2	0.98	1.28	1.58
C	0.40	0.50	0.60
D	15.67	15.87	16.07
E	9.96	10.16	10.36
e	5.08 BSC		
F	2.34	2.54	2.74
F1	(0.10)		
F2	(0.84)		
G	6.48	6.68	6.88
L	12.78	12.98	13.18
L1	2.98	3.18	3.38
L2	-	-	0.80
Q	2.56	2.76	2.96
Q1	3.10	3.30	3.50
ΦP	3.08	3.18	3.28



## Marking Information



① Company Logo

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

③ Device Code : Q – EYE Q Lab, D – Diode,

6A – 6A, 65 – 650V

