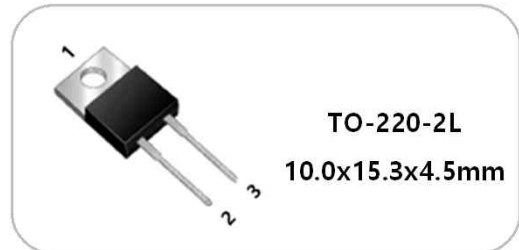


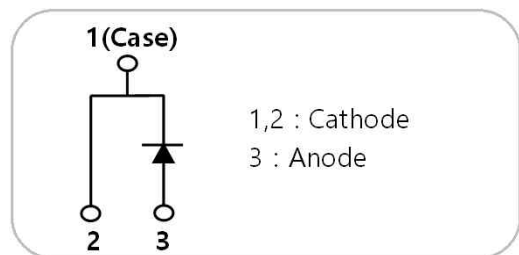

General description

Symbol	Value
V_{BR} @ $T_C=25^\circ\text{C}$	Min 650V
I_F @ $T_C=150^\circ\text{C}$	20A
Q_C	Typ 65nC


Package


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	Unit
Repetitive peak reverse voltage	V_{RRM}	-	650	V
DC peak reverse voltage	V_R	-	650	V
Continuous forward current	I_F	$T_C=150^\circ\text{C}$	20	A
Non-repetitive forward surge current	I_{FSM}	$t_p=10$ ms, Half sine pulse	150	A
Power dissipation	P_{tot}	$T_C=25^\circ\text{C}$	150	W
Operating and storage temperature range	T_{j}, T_{stg}	-	-55 to 175	$^\circ\text{C}$

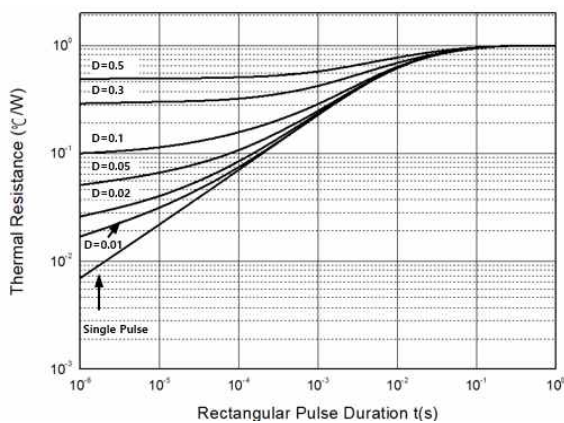
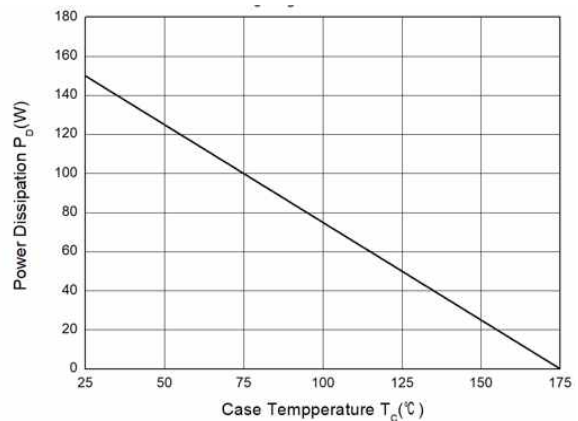



Electrical characteristics ($T_C = 25^\circ\text{C}$)

Parameter	Symbol	Test condition	Value			Unit
			Min	Typ	Max	
Forward voltage	V_F	$I_F=20\text{A}, T_C=25^\circ\text{C}$	-	1.43	-	V
		$I_F=20\text{A}, T_C=175^\circ\text{C}$	-	1.75	-	V
Reverse current	I_R	$V_R=650\text{V}, T_C=25^\circ\text{C}$	-	10	200	μA
		$V_R=650\text{V}, T_C=175^\circ\text{C}$	-	20	-	μA
Total capacitive charge	Q_C	$V_R=400\text{V},$ $Q_C = \int C(V)dV$	-	65	-	nC
Total capacitance	C	$V_R=1\text{V}, f=1\text{MHz}$	-	1000	-	pF
		$V_R=600\text{V}, f=1\text{MHz}$	-	110	-	pF

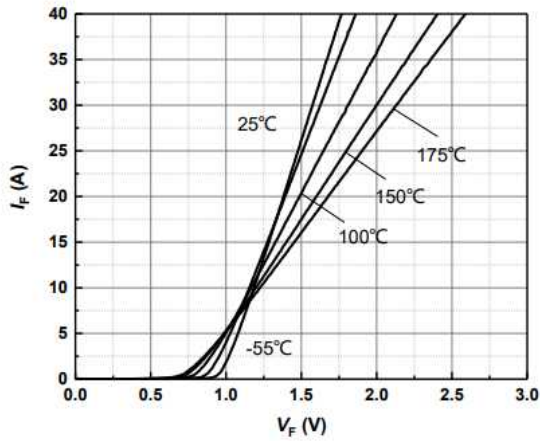

Thermal characteristics ($T_C = 25^\circ\text{C}$)

Symbol	Parameter	Max	Unit
$R_{th(j-c)}$	Junction to case	1.0	$^\circ\text{C}/\text{W}$

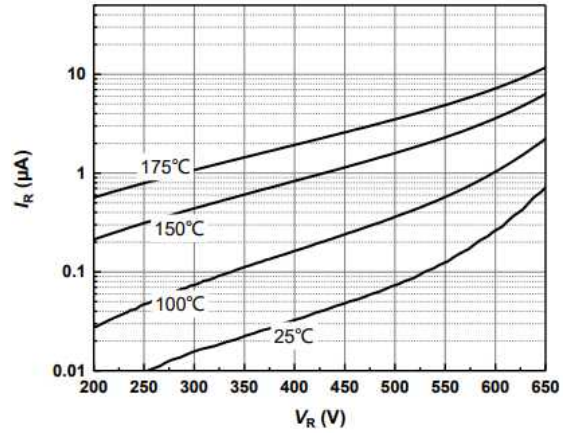
 $t_p - Z_{thjc}$ Characteristics

 $T_C - P_{tot}$ Characteristics


Typical electrical characteristics curves ($T_C = 25^\circ\text{C}$)

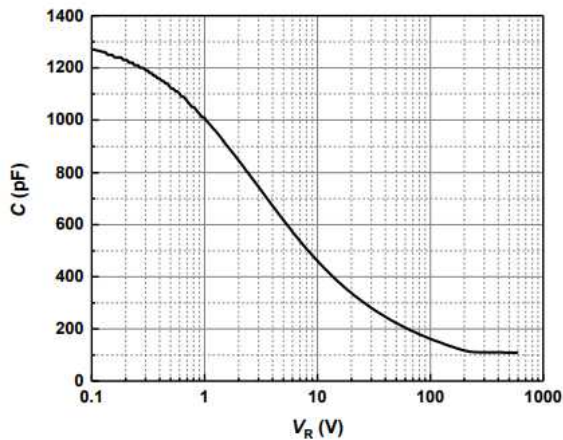
$V_F - I_F$ Characteristics



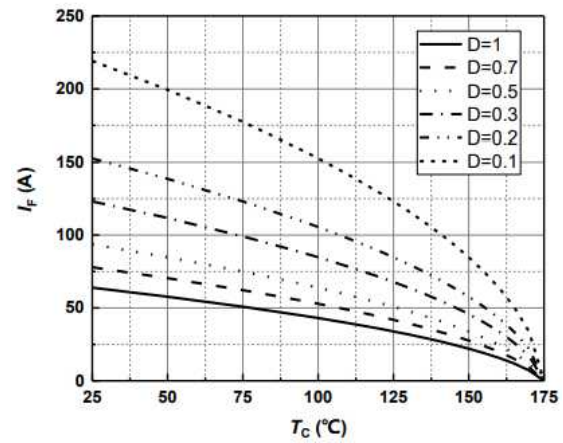
$V_R - I_R$ Characteristics



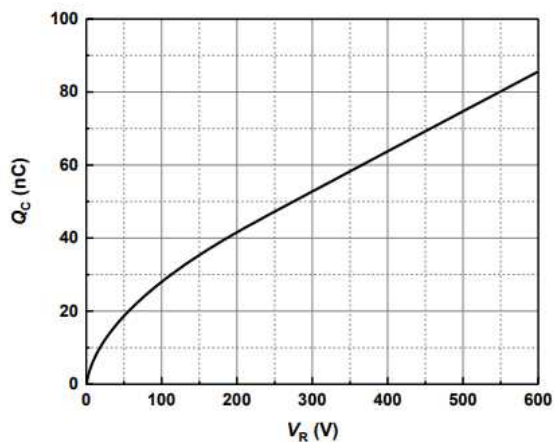
$V_R - C_T$ Characteristics



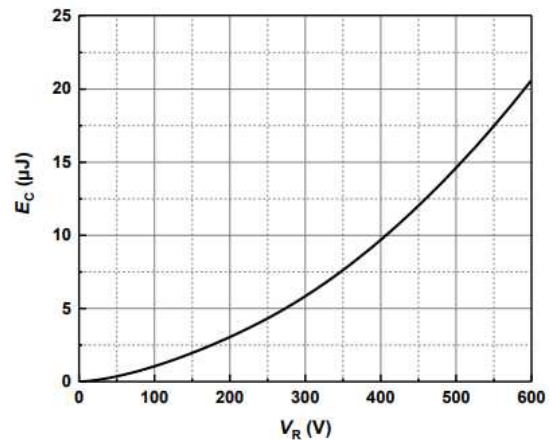
$T_C - I_F$ Characteristics



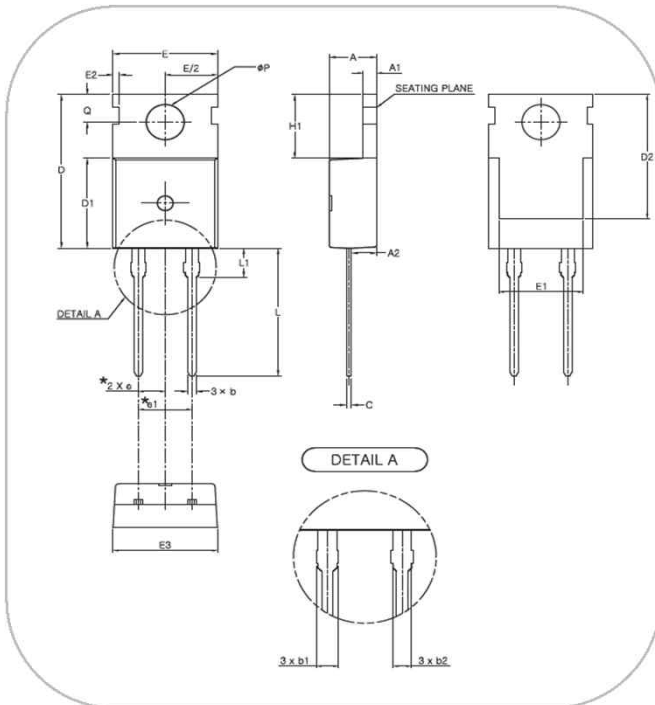
$V_R - Q_C$ Characteristics



$V_R - E_C$ Characteristics

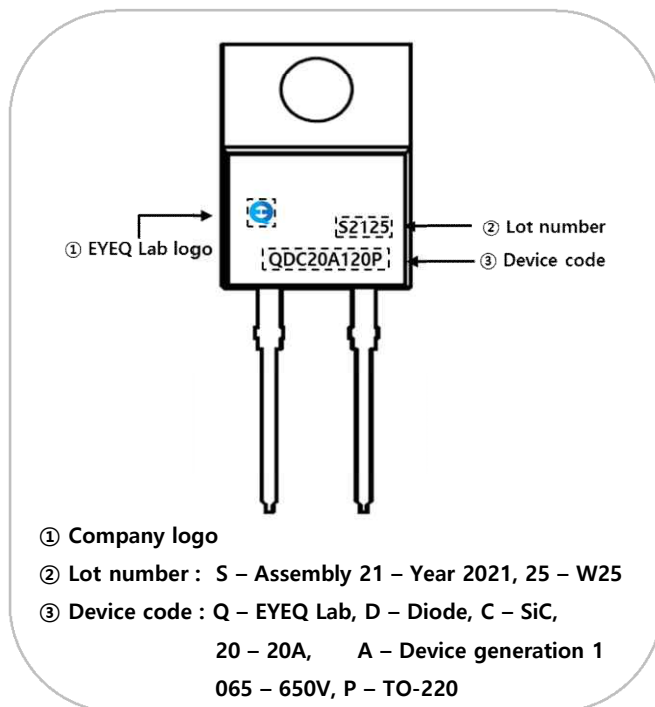


Package dimensions(TO-220-2L)



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)		
ØP	3.50	3.60	3.70
Q	2.70	2.80	2.90

Marking information



- ① Company logo
- ② Lot number : S – Assembly 21 – Year 2021, 25 – W25
- ③ Device code : Q – EYE Q Lab, D – Diode, C – SiC,
20 – 20A, A – Device generation 1
065 – 650V, P – TO-220

