

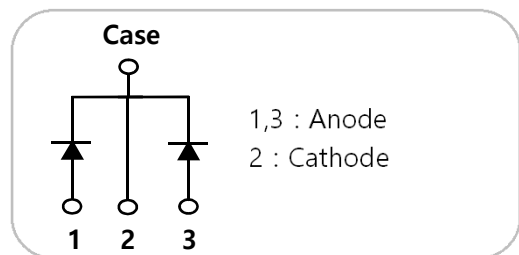

General description

Symbol	Value
V_{BR} @ $T_C=25^\circ\text{C}$	Min 1200V
I_F @ $T_C=150^\circ\text{C}$	40A
Q_C	Typ 210nC


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}	-	1200	V
DC peak reverse voltage	V_R	-	1200	V
Continuous forward current	I_F	$T_C=150^\circ\text{C}$	20*/40	A
Non-repetitive forward surge current	I_{FSM}	$t_p=10$ ms, Half Sine Pulse	150	A
Power dissipation	P_{tot}	$T_C=25^\circ\text{C}$	258*	W
Operating and storage temperature range	T_{J}, T_{stg}	-	-55 to 175	$^\circ\text{C}$

* Per leg / Total device



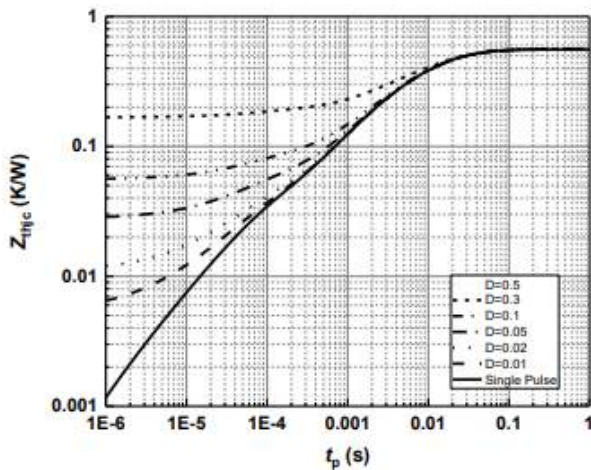
Electrical characteristics ($T_C = 25^\circ\text{C}$)

Parameter	Symbol	Test Condition	Value			Unit
			Min	Typ	Max	
Forward Voltage	V_F	$I_F=20\text{A}, T_C=25^\circ\text{C}$	-	1.5	-	V
		$I_F=20\text{A}, T_C=175^\circ\text{C}$	-	1.85	-	V
Reverse Current	I_R	$V_R=1200\text{V}, T_C=25^\circ\text{C}$	-	30/60	200/400	μA
		$V_R=1200\text{V}, T_C=175^\circ\text{C}$	-	55/110	-	μA
Total capacitive charge	Q_C	$V_R=800\text{V}, T_j=25^\circ\text{C}$ $Q_C = \int C(V)dV$	-	105/210	-	nC
Total Capacitance	C	$V_R=1\text{V}, f=1\text{MHz}$	-	1175/2350	-	pF
		$V_R=800\text{V}, f=1\text{MHz}$	-	100/200	-	pF

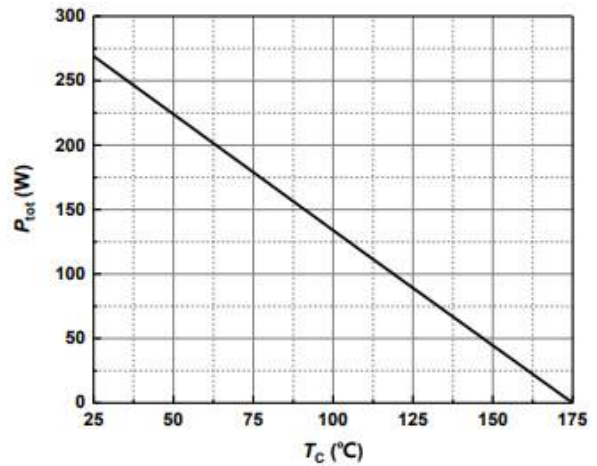
Thermal characteristics ($T_C = 25^\circ\text{C}$)

Symbol	Parameter	Max	Unit
$R_{th(j-c)}$	Junction to case	0.58*	$^\circ\text{C}/\text{W}$

$t_p - Z_{thjc}$ Characteristics

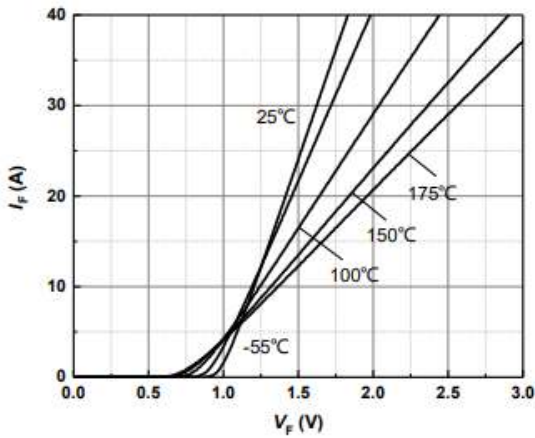


$T_C - P_D$ Characteristics

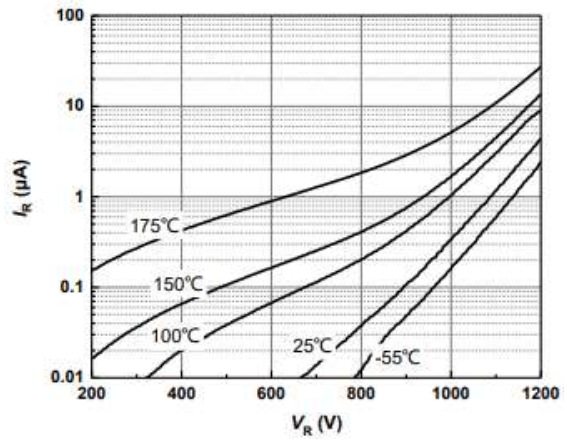


Typical electrical characteristics curves (Per I eg, $T_C = 25^\circ\text{C}$)

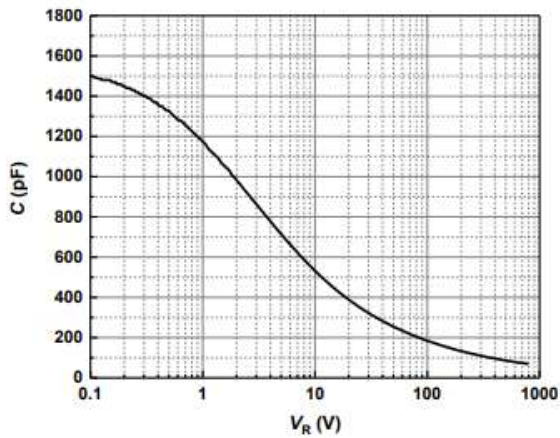
$V_F - I_F$ Characteristics



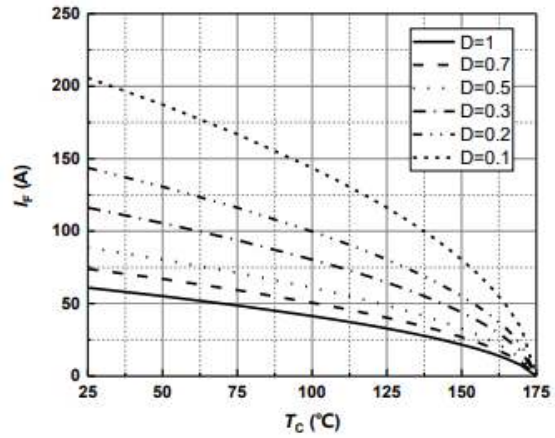
$V_R - I_R$ Characteristics



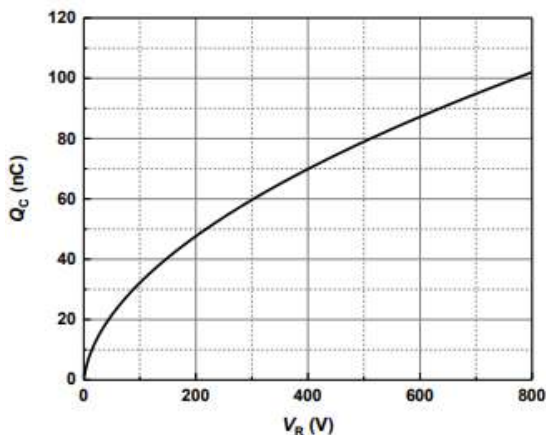
$V_R - C_T$ Characteristics



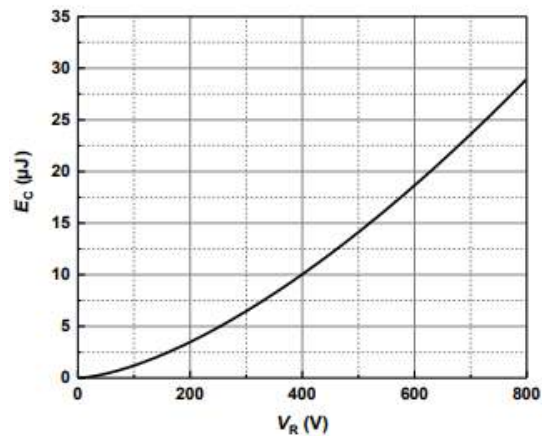
$T_C - I_F$ Characteristics



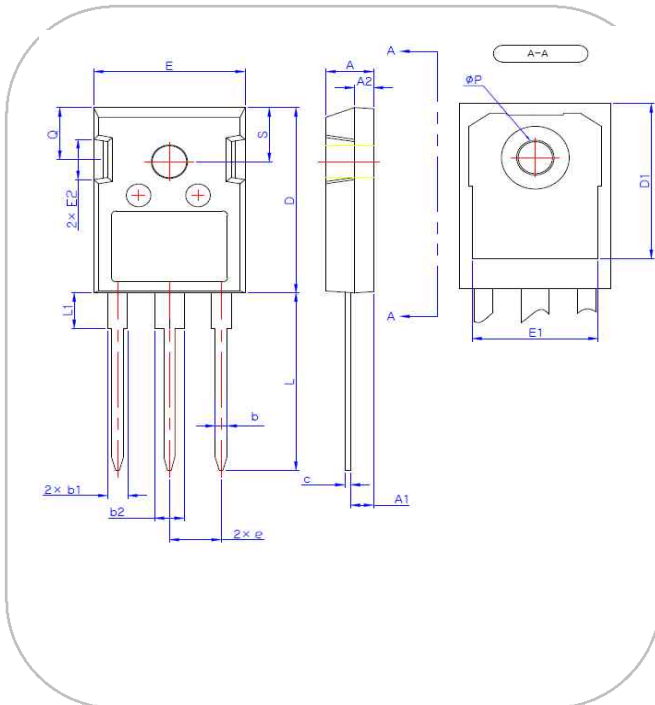
$V_R - Q_C$ Characteristics



$V_R - E_C$ Characteristics

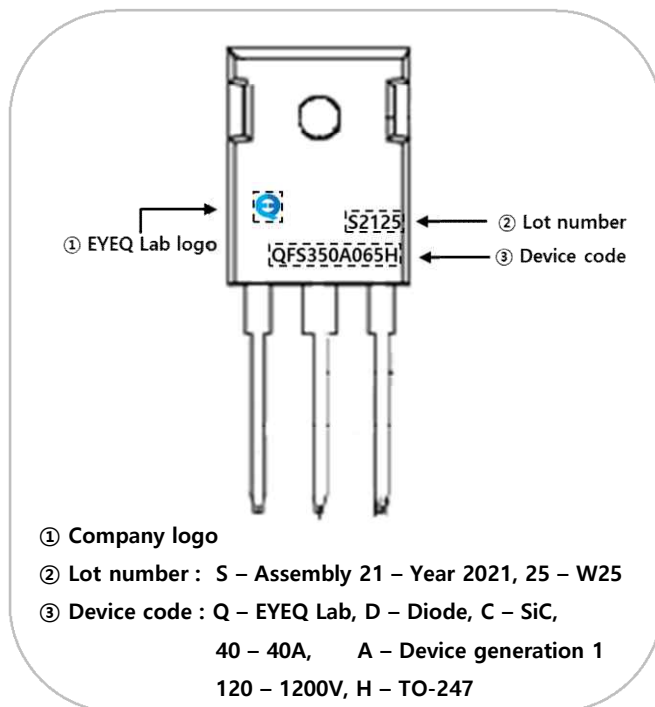


Package dimensions(TO-247)



Symbol	Min	Nom	Max
A	4.80	5.00	5.20
A1	2.29	2.36	2.54
A2	1.90	2.00	2.10
b	1.10	1.20	1.30
b1	1.91	2.11	2.20
b2	2.92	3.10	3.20
c	0.50	0.60	0.70
D	20.80	21.07	21.34
D1	17.43	17.63	17.83
E	15.75	15.94	16.13
E1	13.06	13.26	13.46
E2	4.32	4.58	4.83
e	5.45 BSC		
L	19.85	20.00	20.25
L1	-	-	4.49
ØP	3.55	3.60	3.65
Q	5.59	5.89	6.19
S	6.15 BSC		

Marking information



- ① Company logo
- ② Lot number : S – Assembly 21 – Year 2021, 25 – W25
- ③ Device code : Q – EYEQ Lab, D – Diode, C – SiC,
40 – 40A, A – Device generation 1
120 – 1200V, H – TO-247

