

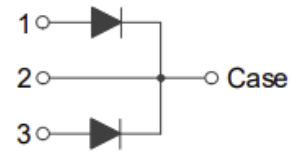
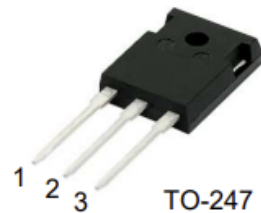
EDH120D40R1V

ev™ Automotive Grade Silicon Carbide Schottky Diode 1200V, 40A

Features

- Zero Reverse Recovery Current
- Low Forward Voltage
- High Surge Current Capability
- Independent of Temperature Switching Behavior
- Positive Temperature Coefficient
- Max Junction Temperature 175 °C
- Pb-free, Halogen Free, and RoHS Compliant
- Qualified to AEC-Q101

V_{RRM}	$I_F, T_C=25^\circ C$	$T_{J, Max}$	Q_C, Typ
1200V	20 / 40A	175°C	120nC



Benefits

- Higher Efficiency
- Ease of Paralleling
- Increased Power Density
- Reduced Cooling Requirements



Applications

- On-board Charger / PFC
- DC-DC Converter
- Auxiliary Inverter

Ordering Information

Part Number	Package	Shipping	Quantity
EDH120D40R1V	TO-247-3L	Tube	30 units

■ Absolute Maximum Ratings (Per Leg / $T_C=25^\circ C$, unless otherwise specified)

Symbol	Parameter	Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage	1200	V
I_F	Forward Current (Per leg / Device)	$T_C=147^\circ C$ 20 / 40	A
$I_{F,SM}$	Non-Repetitive Forward Surge Current (Per leg)	$T_C=25^\circ C, t_p=10ms$	135
		$T_C=150^\circ C, t_p=10ms$	115
$I_{F,Max}$	Non-Repetitive Peak Forward Current (Per leg)	$T_C=25^\circ C, t_p=10\mu s$	1180
		$T_C=150^\circ C, t_p=10\mu s$	980
I^2dt value	$\int I^2t$ (Per leg)	$T_C=25^\circ C, t_p=10ms$	91
		$T_C=150^\circ C, t_p=10ms$	66
P_{tot}	Power Dissipation (Per leg)	$T_C=25^\circ C$ 217	W
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to 175	°C

■ Thermal Characteristics

Symbol	Parameter	Value	Unit
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case (Per leg / Device)	0.69 / 0.35	°C/W

■ Electrical Characteristics (Per Leg / $T_C=25^\circ\text{C}$, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_F	Forward Voltage (Per leg)	$I_F=20\text{A}$, $T_J=25^\circ\text{C}$		1.39	1.70	V
		$I_F=20\text{A}$, $T_J=175^\circ\text{C}$		1.80		
I_R	Reverse Current (Per leg)	$V_R=1200\text{V}$, $T_J=25^\circ\text{C}$			100	μA
		$V_R=1200\text{V}$, $T_J=175^\circ\text{C}$			300	
Q_C	Total Capacitive Charge (Per leg)	$V_R=800\text{V}$, $T_J=25^\circ\text{C}$		120		nC
C	Total Capacitance (Per leg)	$V_R=1\text{V}$, $f=100\text{kHz}$		1357		pF
		$V_R=800\text{V}$, $f=100\text{kHz}$		85		
E_C	Capacitance Stored Energy (Per leg)	$V_R=800\text{V}$		34		μJ

■ **Typical Characteristics** (Per Lag / $T_J=25^\circ\text{C}$ unless otherwise noted)

Figure 1. Forward Characteristics

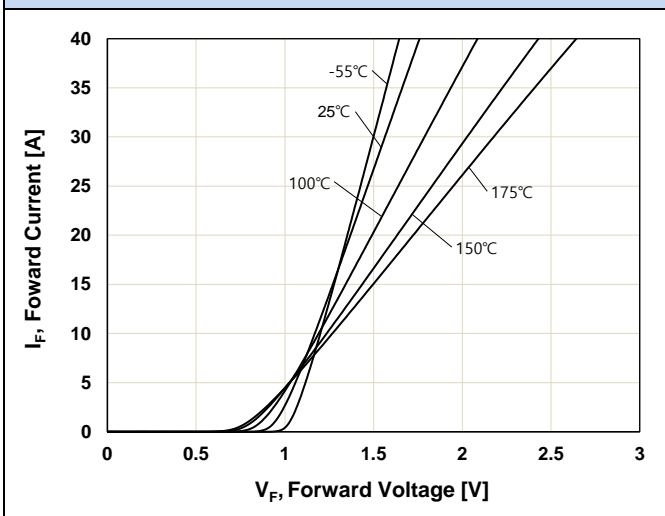


Figure 2. Reverse Characteristics

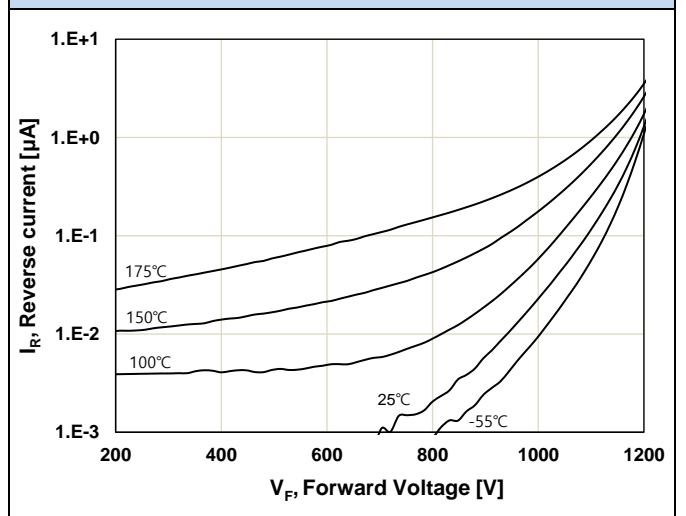


Figure 3. Power Derating

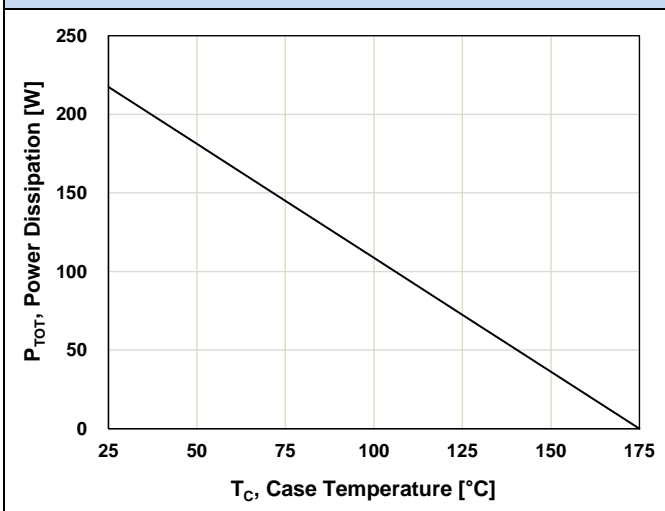


Figure 4. Current Derating

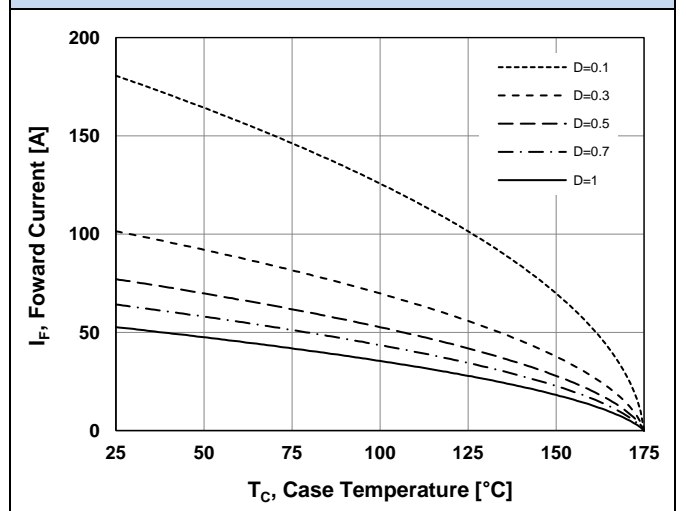


Figure 5. Capacitive Charge Characteristics

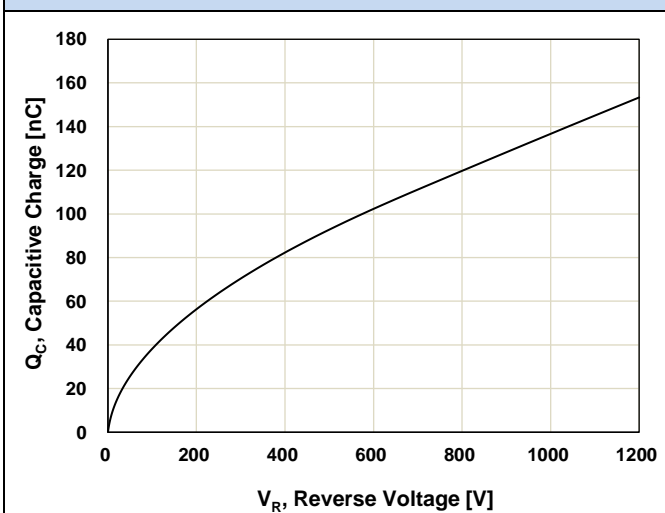
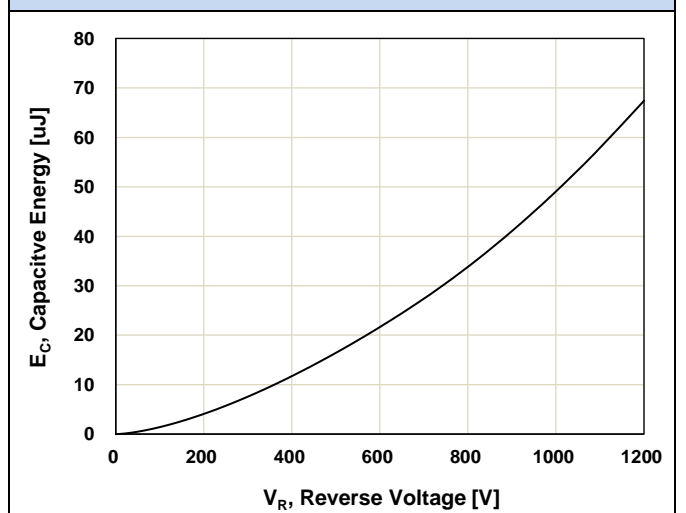
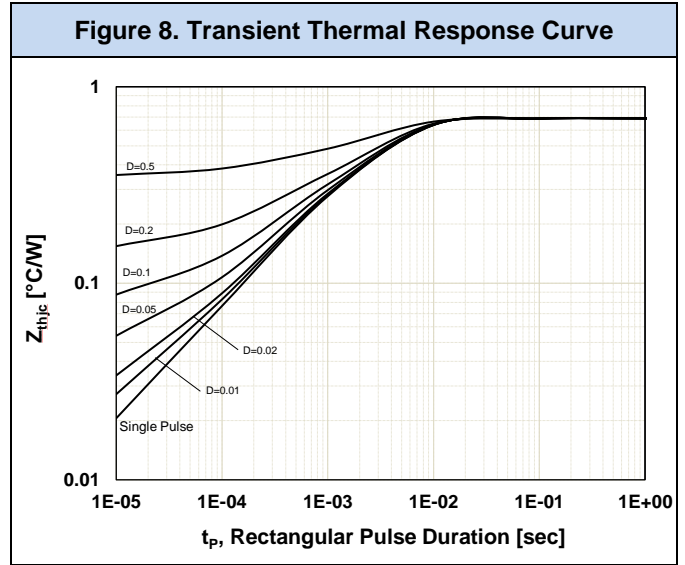
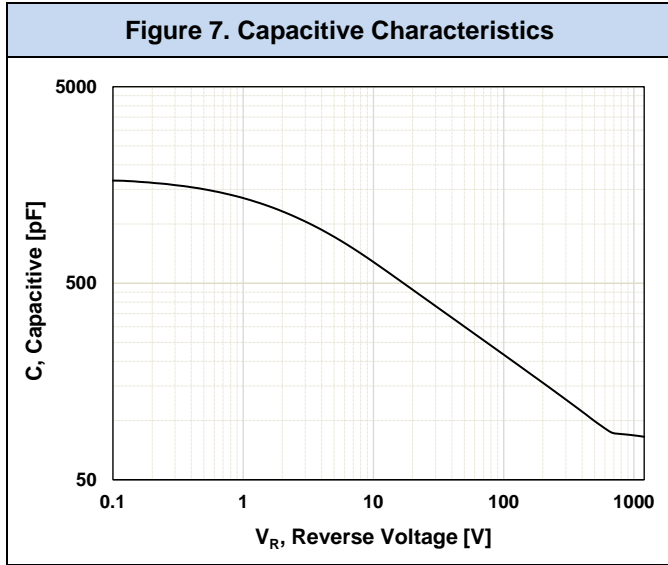


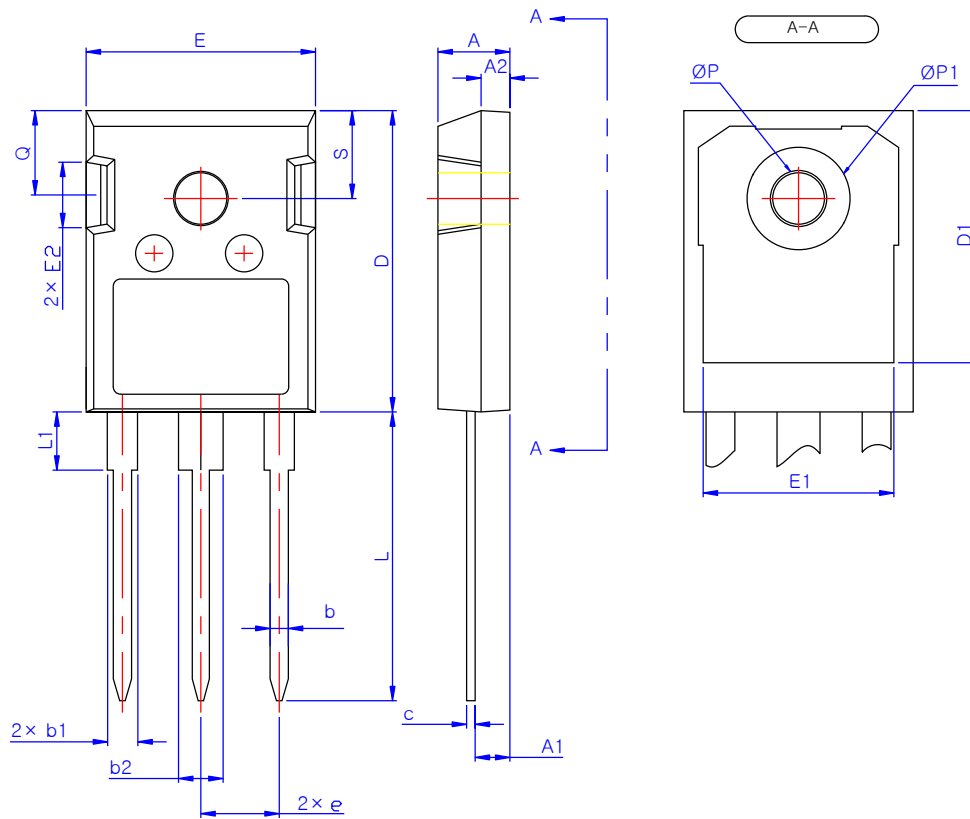
Figure 6. Capacitance Stored Energy



■ Typical Characteristics (Per Lag)



Package Outlines TO-247-3L



SYMBOL	MIN	MAX
A	4.80	5.20
A1	2.29	2.54
A2	1.90	2.10
b	1.10	1.30
b1	1.91	2.20
b2	2.92	3.20
c	0.50	0.70
D	20.80	21.34
D1	17.43	17.83
E	15.75	16.13
E1	13.06	13.46
E2	4.32	4.83
e	5.45 BSC	
L	19.85	20.25
L1	-	4.49
ØP	3.55	3.65
ØP1	7.08	7.28
Q	5.59	6.19
S	6.15 BSC	

*Dimensions in millimeters

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