

EDH65D20R1L

ev™ Silicon Carbide Schottky Diode 650V, 20A

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

V_{RRM}	$I_F, T_C=25^\circ C$	$T_{J, Max}$	Q_C, Typ
650V	10 / 20A	175°C	32nC

Benefits

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



Applications

- Solar Inverters
- Power Factor Correction
- Industrial Power Supply
- EV Charging Station

Ordering Information

Part Number	Package	Shipping	Quantity
EDH65D20R1L	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	650	V
I_F	Forward Current (Per leg / Device)	$T_C=136^\circ C$ 10 / 20	A
$I_{F,SM}$	Non-Repetitive Forward Surge Current (Per leg)	$T_C=25^\circ C, t_p=10ms$	50
		$T_C=150^\circ C, t_p=10ms$	42
$I_{F,Max}$	Non-Repetitive Peak Forward Current (Per leg)	$T_C=25^\circ C, t_p=10\mu s$	460
		$T_C=150^\circ C, t_p=10\mu s$	390
I^2dt value	$\int I^2t$ (Per leg)	$T_C=25^\circ C, t_p=10ms$	12.5
		$T_C=150^\circ C, t_p=10ms$	9
P_{tot}	Power Dissipation (Per leg)	$T_C=25^\circ C$ 75	W
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to 175	°C

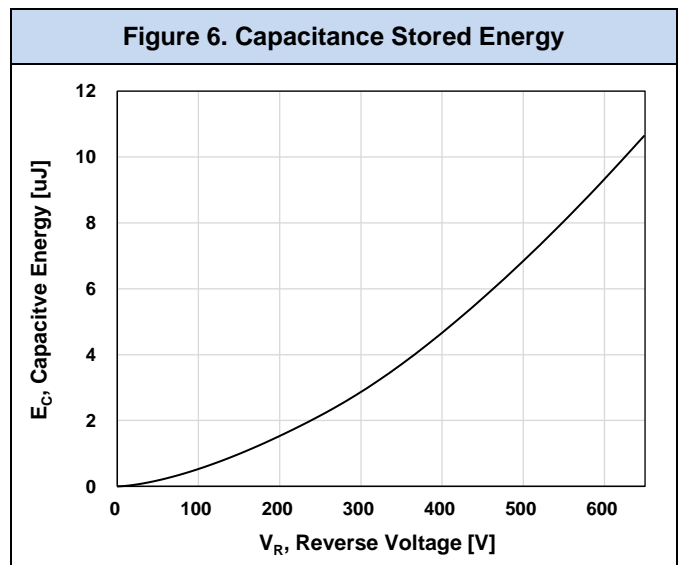
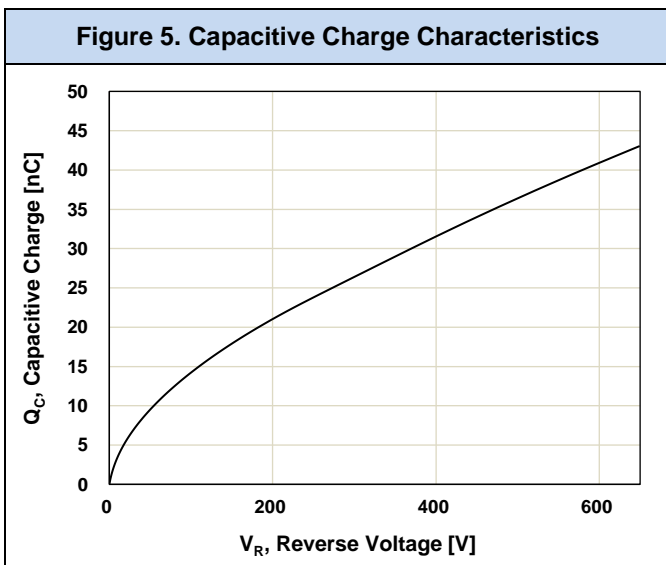
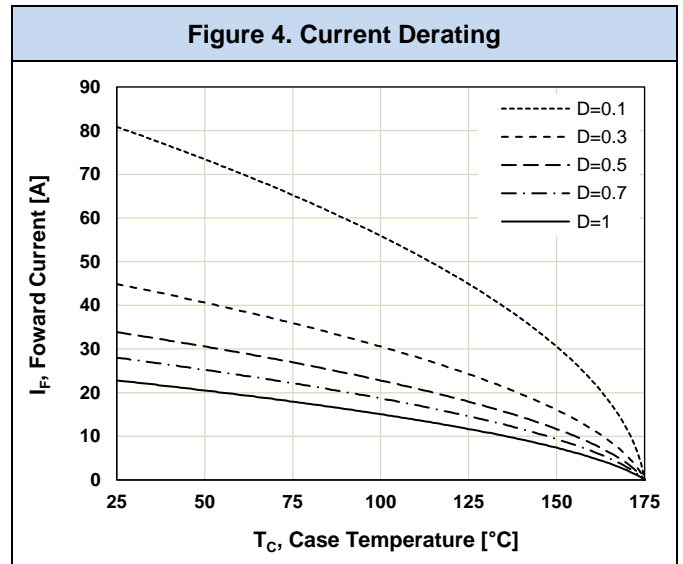
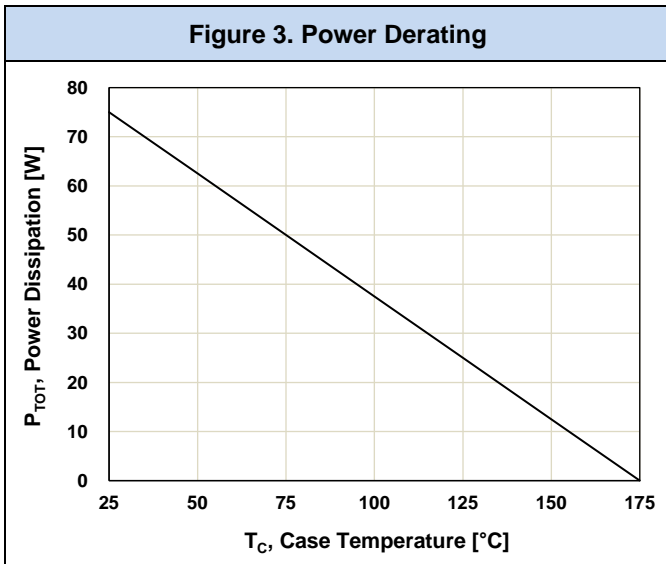
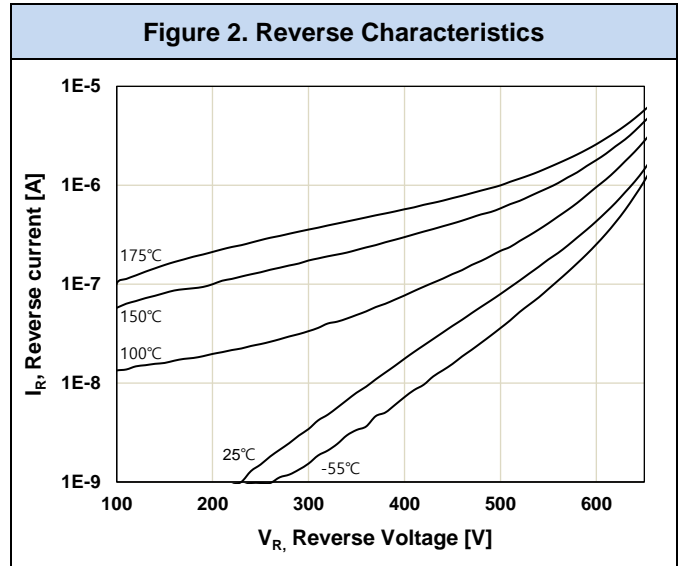
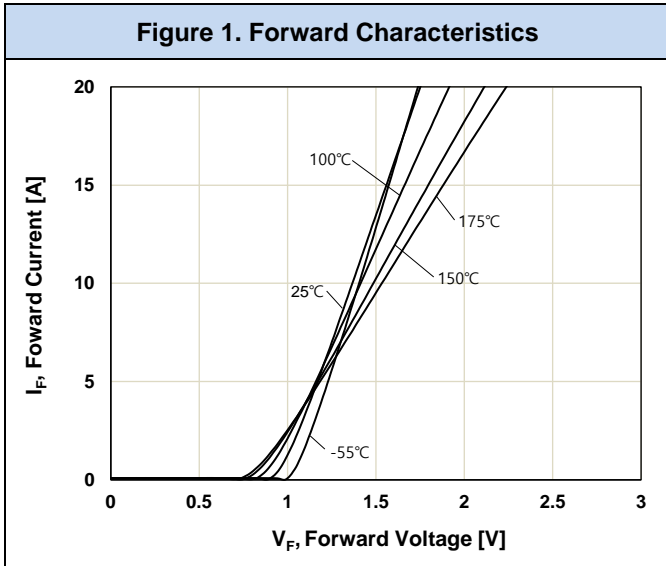
■ Thermal Characteristics

Symbol	Parameter	Value	Unit
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case (Per leg / Device)	2.0 / 1.0	°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)	$I_F=10\text{A}$, $T_J=25^\circ\text{C}$		1.40	1.70	V
		$I_F=10\text{A}$, $T_J=175^\circ\text{C}$		1.55		
I_R	Reverse Current (Per leg)	$V_R=650\text{V}$, $T_J=25^\circ\text{C}$			100	μA
		$V_R=650\text{V}$, $T_J=175^\circ\text{C}$			300	
Q_C	Total Capacitive Charge (Per leg)	$V_R=400\text{V}$, $T_J=25^\circ\text{C}$		32		nC
C	Total Capacitance (Per leg)	$V_R=1\text{V}$, $f=100\text{kHz}$		511		pF
		$V_R=400\text{V}$, $f=100\text{kHz}$		48		
E_C	Capacitance Stored Energy (Per leg)	$V_R=400\text{V}$		4.6		μJ

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



■ Typical Characteristics

Figure 7. Capacitive Characteristics

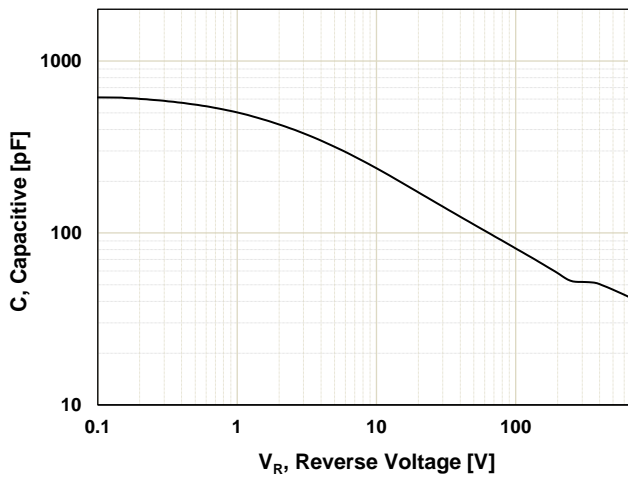
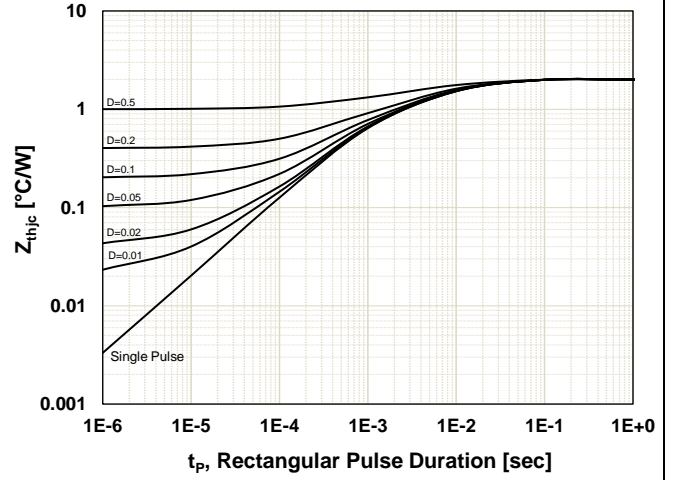
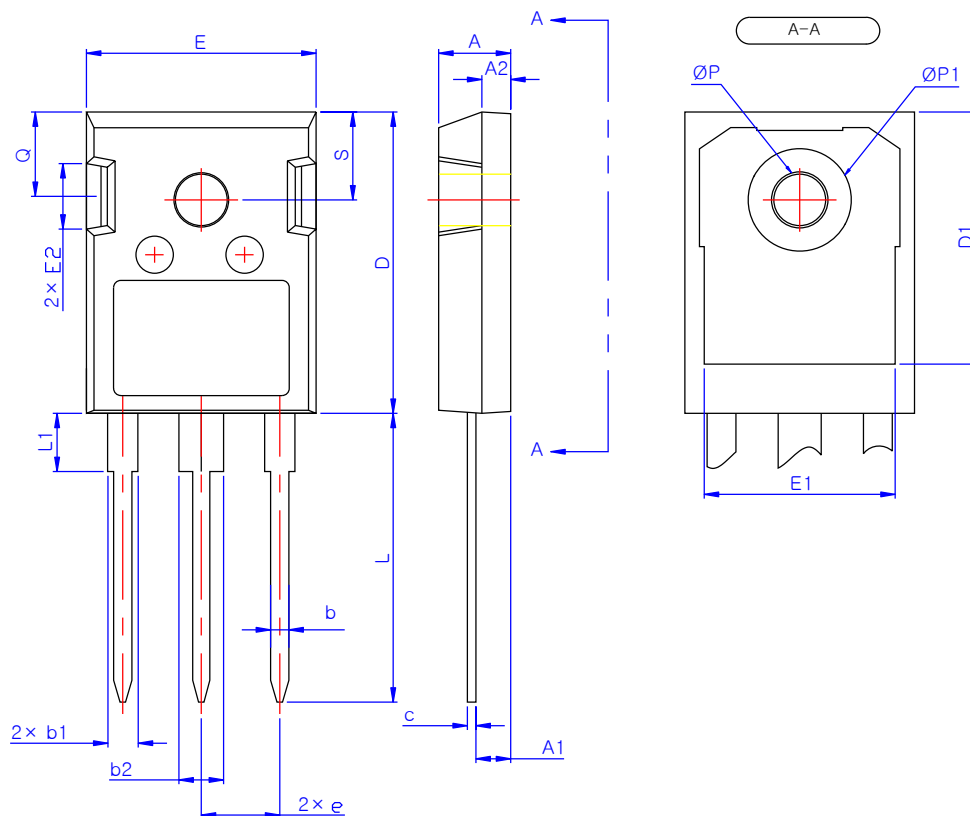


Figure 8. Transient Thermal Response Curve



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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