

EDF65S20R1L

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	20A	175°C	60nC

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
EDF65S20R1L	TO-220F-2L	Tube	50 units

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

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		650	V
I_F	Forward Current	$T_C=40^\circ C$	20	A
$I_{F, SM}$	Non-Repetitive Forward Surge Current	$T_C=25^\circ C, t_p=10ms$	95	A
		$T_C=150^\circ C, t_p=10ms$	81	
$I_{F, Max}$	Non-Repetitive Peak Forward Current	$T_C=25^\circ C, t_p=10\mu s$	880	A
		$T_C=150^\circ C, t_p=10\mu s$	750	
I^2dt value	$\int I^2 dt$	$T_C=25^\circ C, t_p=10ms$	45.1	A^2s
		$T_C=150^\circ C, t_p=10ms$	32.7	A^2s
P_{tot}	Power Dissipation	$T_C=25^\circ C$	43	W
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to 175	°C

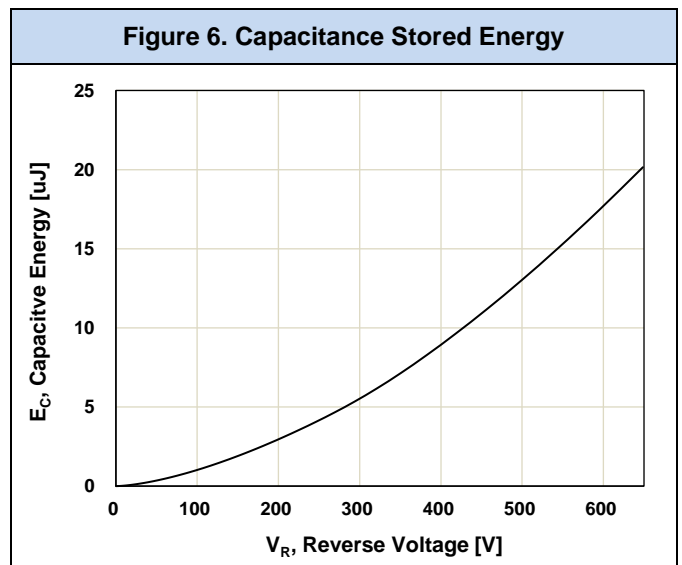
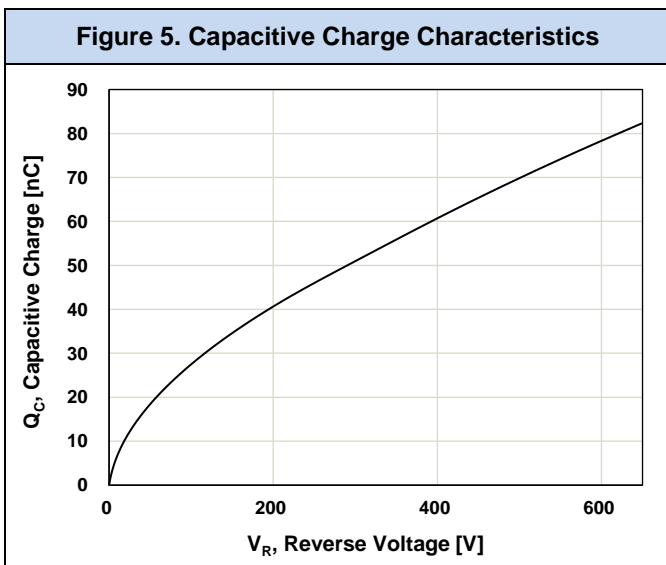
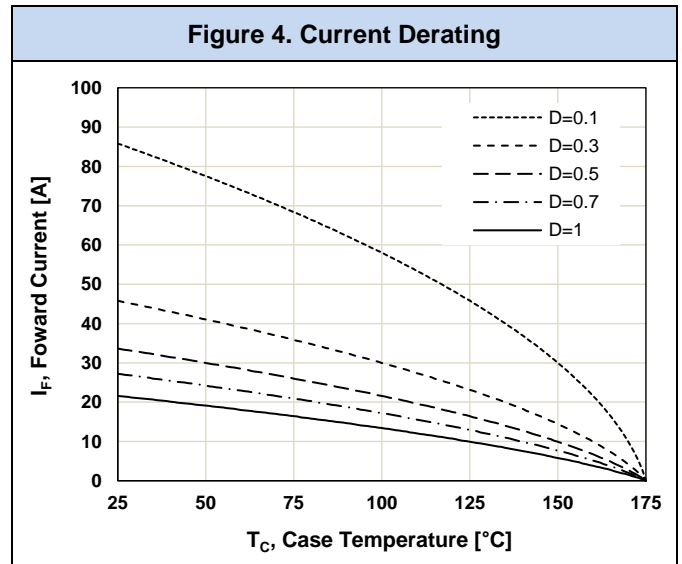
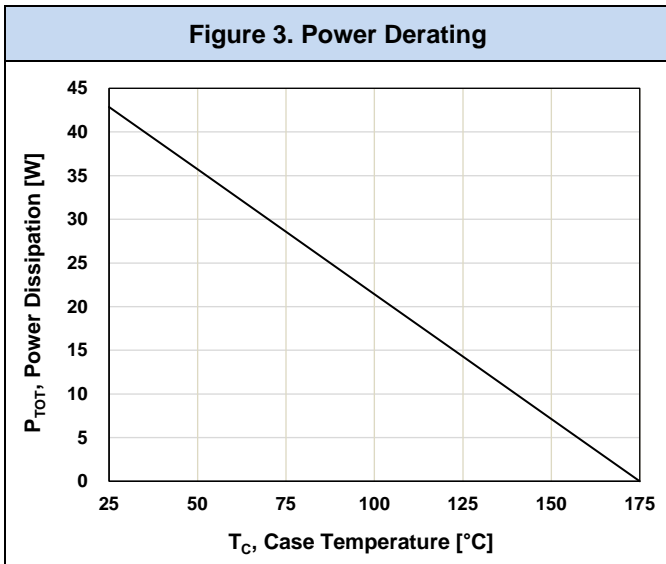
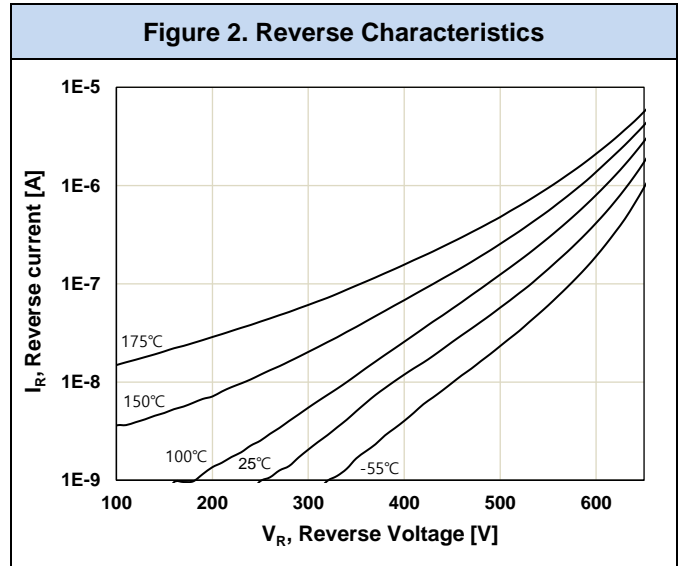
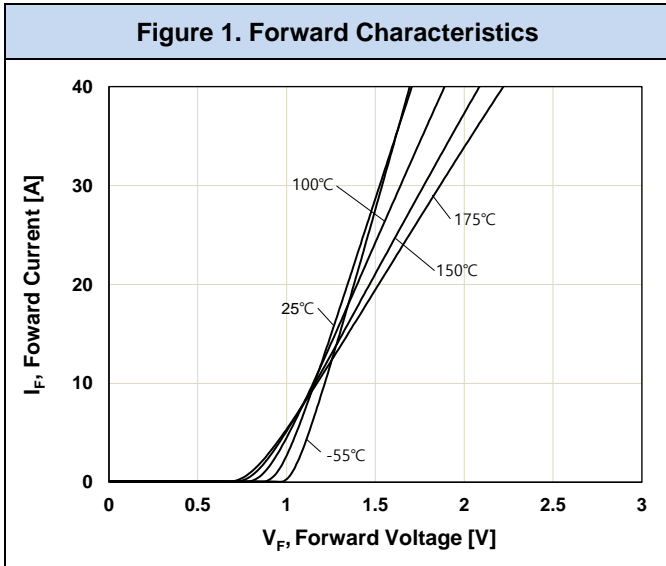
■ Thermal Characteristics

Symbol	Parameter	Value	Unit
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	3.5	°C/W

■ Electrical Characteristics (T_C=25°C, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_F	Forward Voltage	$I_F=20A, T_J=25^\circ C$		1.40	1.70	V
		$I_F=20A, T_J=175^\circ C$		1.55		
I_R	Reverse Current	$V_R=650V, T_J=25^\circ C$			100	μA
		$V_R=650V, T_J=175^\circ C$			300	
Q_C	Total Capacitive Charge	$V_R=400V, T_J=25^\circ C$		60		nC
C	Total Capacitance	$V_R=1V, f=100kHz$		981		pF
		$V_R=400V, f=100kHz$		95		
E_C	Capacitance Stored Energy	$V_R=400V$		8.9		μJ

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



■ Typical Characteristics

Figure 7. Capacitive Characteristics

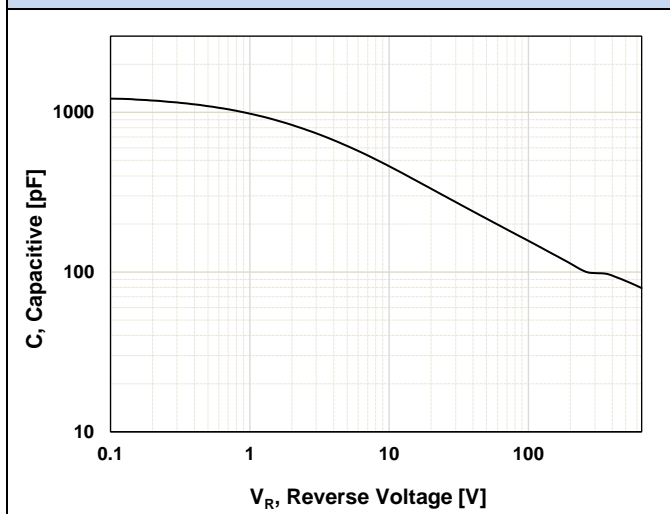
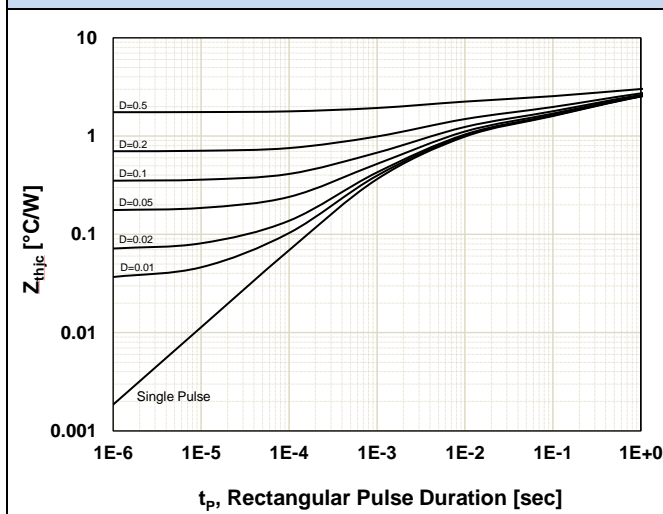
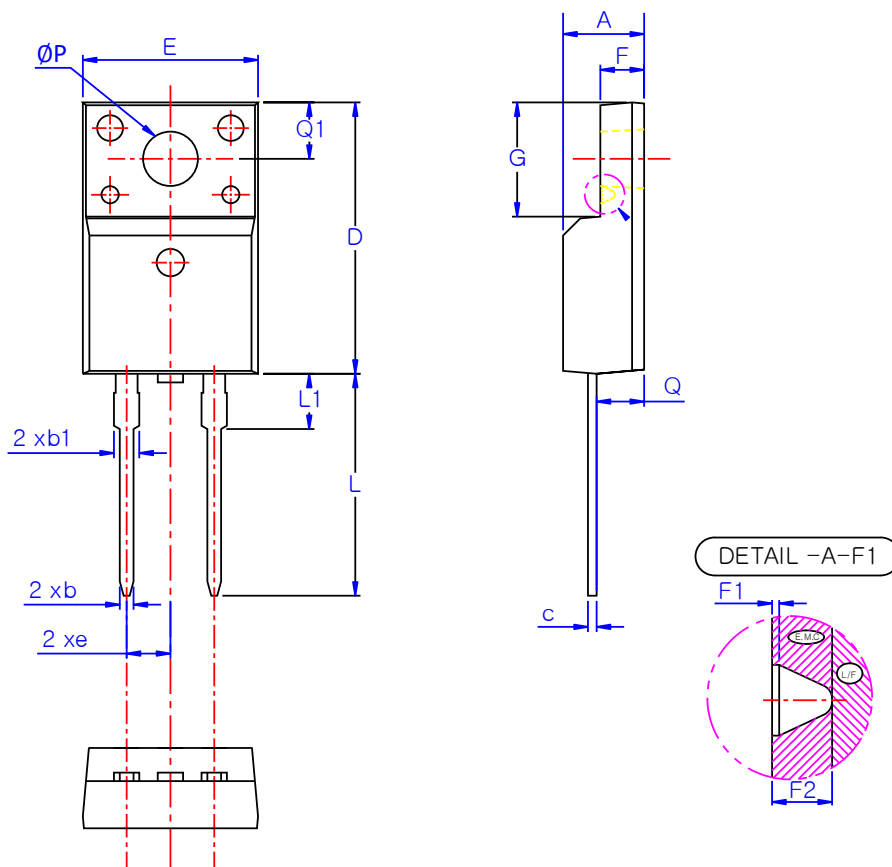


Figure 8. Transient Thermal Response Curve



Package Outlines 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
c	0.45	0.50	0.60
D	15.67	15.87	16.07
E	9.96	10.16	10.36
e	2.54 BSC		
F	2.34	2.54	2.74
	(0.10)		
F2	(0.84)		
G	6.48	6.68	6.88
L	12.78	12.98	13.18
L1	3.03	3.23	3.43
Q	2.56	2.76	2.96
Q1	3.10	3.30	3.50
ØP	3.08	3.18	3.28

NOTE

1. THESE DIMENSIONS DO NOT INCLUDE PROTRUSIONS OF THE MOLD.
2. THE "()" MARK IS THE REFERENCE.

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