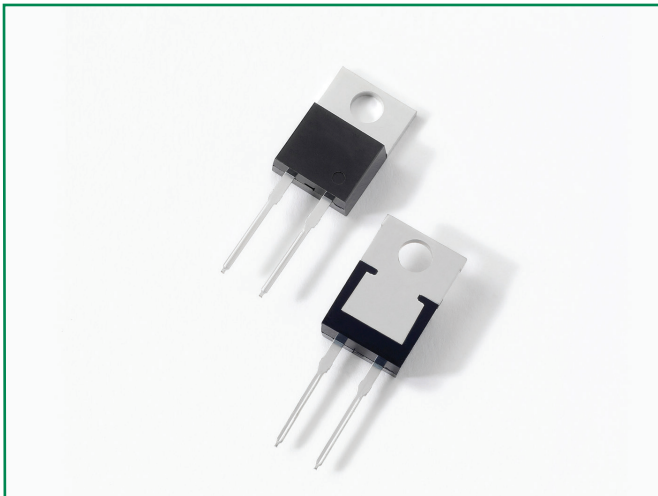


### DUR30120



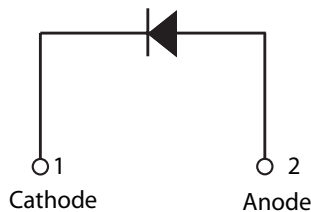
#### Description

Littelfuse DUR series Ultrafast Recovery Rectifier is designed to meet the general requirements of commercial applications by providing low  $T_{rr}$ , high-temperature, low-leakage and low forward voltage drop products. It is suitable for output rectifier, free-wheeling or boost diode in high-frequency power switching application such as switch mode power supply and DC-DC converters.

#### Features

- Ultra-fast switching
- Low reverse leakage current
- High surge current capability
- Low forward voltage drop
- Single die in true two-leaded TO-220AC
- Pb-free E3 means 2nd level interconnect is Pb-free and the terminal finish material is tin(Sn) (IPC/JEDEC J-STD-609A.01)

#### Circuit Diagram



#### Applications

- Output rectifiers in switch mode power supplies (SMPS) and DC to DC converters
- Free-wheeling diode or boost diode in converters and motor control circuits
- Anti-parallel diode for high frequency switching devices such as IGBT
- Uninterruptible Power Supplies (UPS)
- Inductive heating and melting
- Ultrasonic cleaners and welders

#### Maximum Ratings

Characteristics	Symbol	Conditions	Max.	Unit
Peak Inverse Voltage	$V_{RWM}$	-	1200	V
Average Forward Current (Per Device)	$I_{F(AV)}$	50% duty cycle @ $T_c = 115^\circ\text{C}$ , rectangular wave form	30	A
Peak One Cycle Non-Repetitive Surge Current ( Per Leg)	$I_{FSM}$	8.3 ms, half sine pulse	80	A

#### Electrical Characteristics

Characteristics	Symbol	Conditions	Typ.	Max.	Unit
Forward Voltage Drop (Per Leg) <sup>1</sup>	$V_{F1}$	@30A, Pulse, $T_j = 25^\circ\text{C}$	2.7	2.75	V
	$V_{F2}$	@30A, Pulse, $T_j = 125^\circ\text{C}$	2.5	-	V
	$V_{F3}$	@30A, Pulse, $T_j = 150^\circ\text{C}$	2.3	-	V
Reverse Current (Per Leg) <sup>1</sup>	$I_{R1}$	@ $V_R = \text{Rated } V_R, T_j = 25^\circ\text{C}$	0.77	250	$\mu\text{A}$
	$I_{R2}$	@ $V_R = \text{Rated } V_R, T_j = 125^\circ\text{C}$	550	4000	$\mu\text{A}$
	$I_{R3}$	@ $V_R = \text{Rated } V_R, T_j = 150^\circ\text{C}$	2174	-	$\mu\text{A}$
Reverse Recovery Time	$t_{rr1}$	$I_F = 500\text{mA}, I_R = 1\text{A}, \text{ and } I_{rm} = 250\text{mA}$	-	100	ns

Footnote 1: Pulse Width < 300 $\mu\text{s}$ , Duty Cycle <2%

### Thermal-Mechanical Specifications

Characteristics	Symbol	Conditions	Specification	Unit
Junction Temperature	$T_J$	-	-55 to +150	°C
Storage Temperature	$T_{stg}$	-	-55 to +150	°C
Typical Thermal Resistance Junction to Case	$R_{\theta JC}$	DC operation	0.9	°C/W
Approximate Weight	wt	-	1.6	g
Case Style	-	TO-220AC	-	-

Figure 1: Typical Forward Characteristics

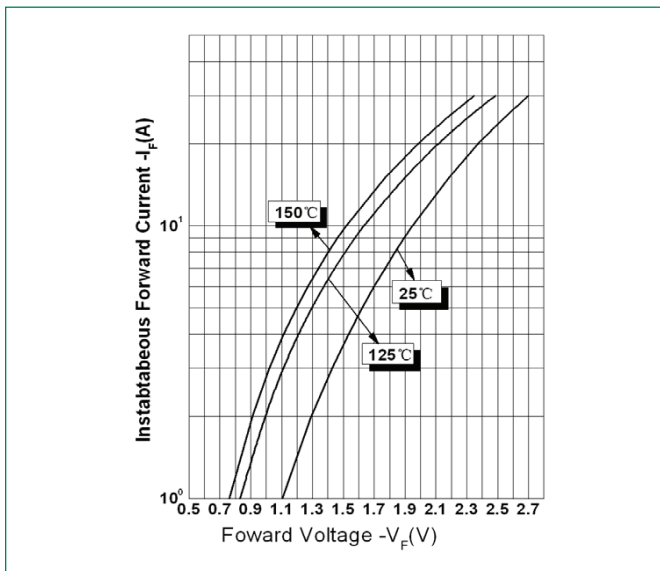


Figure 2: Typical Reverse Characteristics

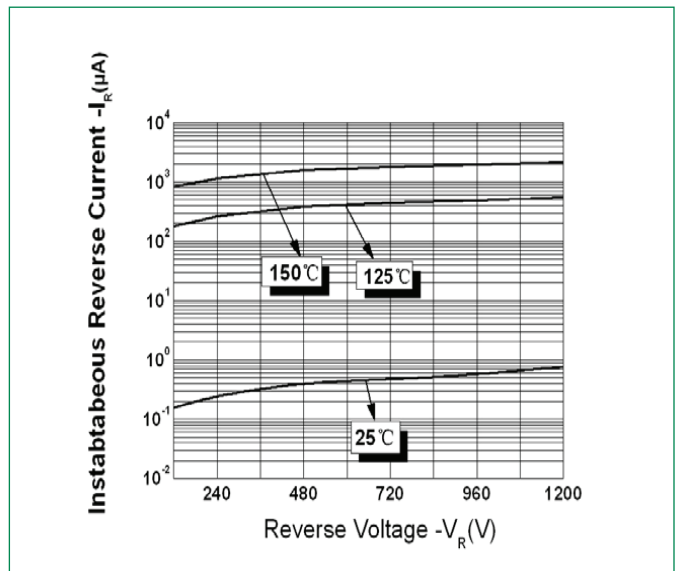
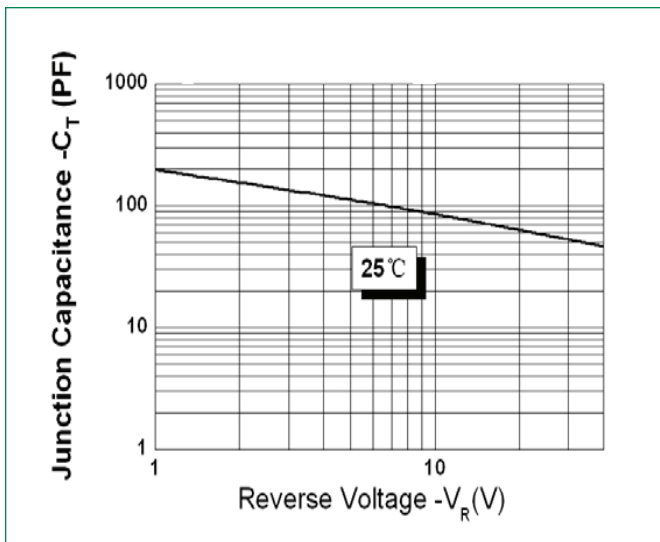
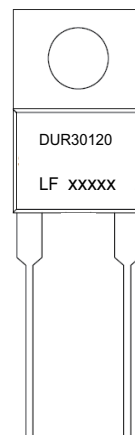


Figure 3: Typical Junction Capacitance



Part Numbering and Marking System

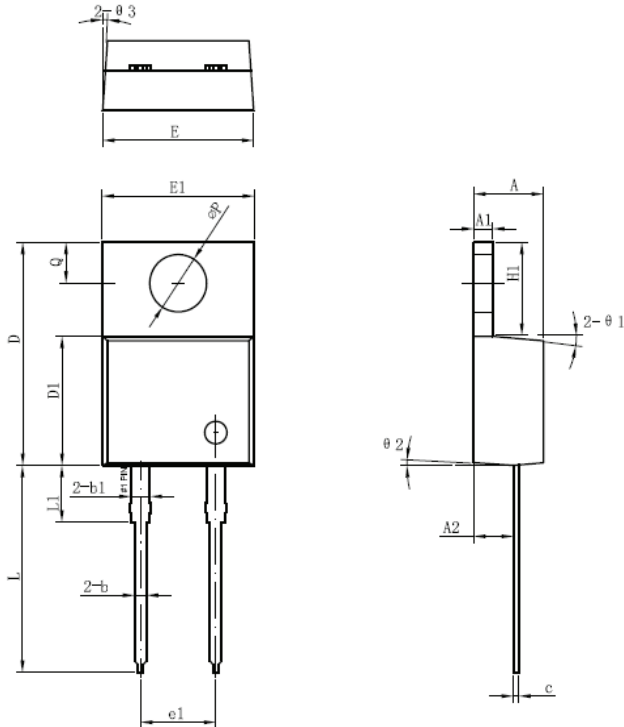


- \*xxxxx is YYWWL
- DUR = Device Type
  - 30 = Forward Current (30A)
  - 120 = Reverse Voltage (1200V)
  - LF = Littelfuse
  - YY = Year
  - WW = Week
  - L = Lot Number

### Packing Options

Part Number	Marking	Packing Mode	M.O.Q
DUR30120	DUR30120	50pcs /Tube	1000

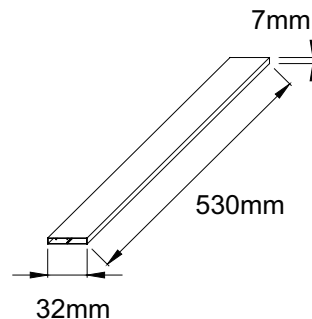
### Dimensions-Package TO-220AC



Symbol	Millimeters	
	Min	Max
A	3.56	4.83
A1	0.51	1.40
A2	2.03	2.92
b	0.38	1.02
b1	1.14	1.78
c	0.31*	0.61
D	14.22	16.51
D1	8.38	9.02
E	9.65	10.67
H1	5.84	6.86
L	12.70	14.73
L1	-	6.35
øP	3.53	4.09
Q	2.54	3.43

Footnote \*: The spec. does not comply with JEDEC spec.

### Tube Specification TO-220AC



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