### **Ultrafast Recovery Rectifier** DURD560A, 5A, 600V, TO-252

## DURD560A



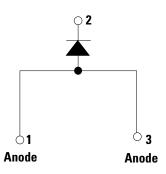






#### **Circuit Diagram**

#### **Base** Cathode



#### **Description**

Littelfuse DUR series Ultrafast Recovery Rectifier is designed to meet the general requirements of commercial applications by providing low Trr, 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 surface
- mount TO-252 (DPAK) package
- Pb-free E3 means 2nd level interconnect is Pb-free and the terminal finish material is tin(Sn) (IPC/JEDEC J-STD-609A.01)

#### **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 <sub>RWM</sub>	-	600	V
Average Forward Current (per device)	lo <sub>(AV)</sub>	50% duty cycle @T <sub>c</sub> =100 °C, rectangular wave form	5	А
Peak One Cycle Non- Repetitive Surge Current (per leg)	I <sub>FSM</sub>	8.3 ms, half sine pulse	60	А

#### **Electrical Characteristics**

Characteristics	Symbol	Conditions	Тур.	Max.	Unit
Forward Voltage Drop ( Per Leg) <sup>1</sup>	V <sub>F1</sub>	@5A, Pulse, T <sub>J</sub> = 25 °C	1.50	1.70	V
	V <sub>F2</sub>	@5A, Pulse, T <sub>J</sub> = 125 °C	1.41	1.50	V
Reverse Current ( Per Leg) 1	I <sub>R1</sub>	$@V_R = Rated V_R, T_J = 25 °C$	0.10	5	μΑ
	I <sub>R2</sub>	$@V_R = Rated V_R$ , $T_J = 125  ^{\circ}C$	52	500	μΑ
Reverse Recovery Time ( Per Leg)	t <sub>rr1</sub>	I <sub>F</sub> =500mA, I <sub>R</sub> =1A,and I <sub>m</sub> =250mA	-	35	ns

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

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#### **Thermal-Mechanical Specifications**

Characteristics	Symbol	Conditions	Specification	Unit
Junction Temperature	T <sub>J</sub>	-	-55 to +150	°C
Storage Temperature	T <sub>stg</sub>	-	-55 to +150	°C
Typical Thermal Resistance Junction to Case	R <sub>eJC</sub>	-	4.5	°C/W
Approximate Weight	wt	-	0.39	g
Case Style	_	DPAK (TO-252)	-	-

#### Figure 1: Typical Forward Characteristics

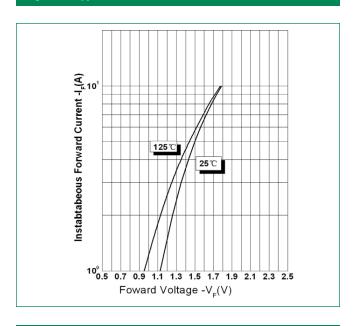
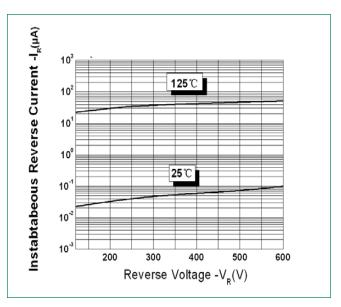
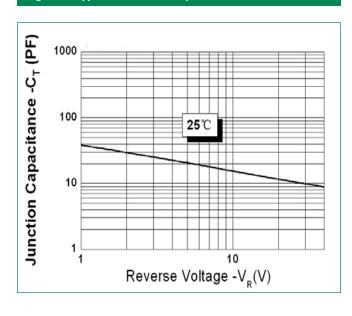


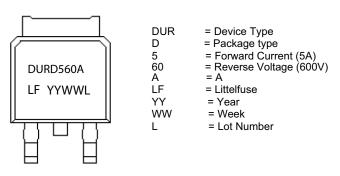
Figure 2: Typical Reverse Characteristics



**Figure 3: Typical Junction Capacitance** 



**Part Numbering and Marking System** 

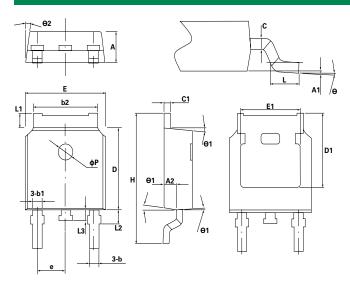


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#### **Packing Options**

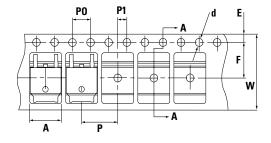
Part Number	Marking	Packing Mode	M.O.Q
DURD560A	DURD560A	2500pcs / reel	2500

#### **Dimensions-DPAK(TO-252)**



Symbol	Min.	Тур.	Max
Α	2.2	2.3	2.38
A1	0	-	0.1
A2	0.9	1.01	1.1
b	0.71	0.76	0.86
b1		0.76	
b2	5.13	5.33	5.46
С	0.47	0.5	0.6
c1	0.47	0.5	0.6
D	6	6.1	6.2
D1	-	5.3	-
E	6.5	6.6	6.7
E1	-	4.8	-
е		2.286BSC	
Н	9.7	10.1	10.4
L	1.4	1.5	1.7
L1	0.9	-	1.25
L2		1.05	
L3		0.8	
øΡ		1.2	
θ	0°	-	8°
⊖1	5°	7°	9°
⊖2	5°	7°	9°

### **Carrier Tape & Reel Specification**





Symbol	Willimeters			
	Min	Max		
Α	6.80	7.00		
В	10.40	10.60		
С	2.60	2.80		
d	ø1.45	ø1.65		
E	1.65	1.85		
F	7.40	7.60		
P0	3.90	4.10		
Р	7.90	8.10		
P1	1.90	2.10		
W	15.50	16.50		