

Features

- Low Leakage Current
- Low Forward Voltage Drop
- High Surge Capacity
- Soft, Fast Switch
- High Junction Temperature Capability

Product Summary

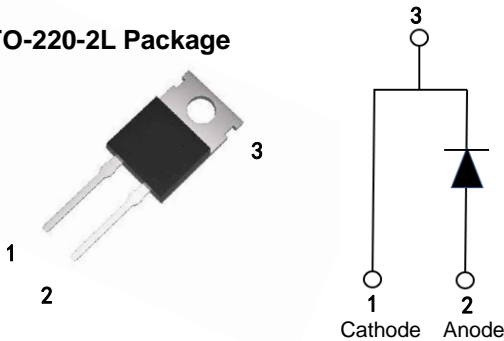
V_R	300V
I_F	20A (Per Leg)
T_J	150°C
V_F	0.91V @20A (Typ.)

Applications

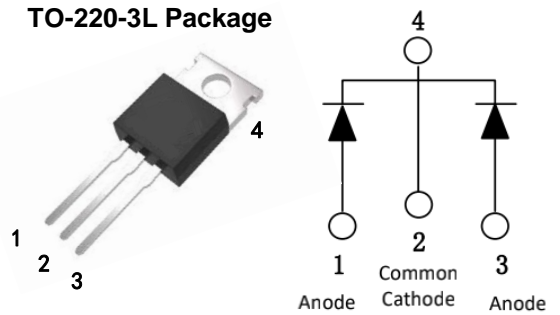
- AC-DC power adapter
- Rectifier, Convert



TO-220-2L Package



TO-220-3L Package



Package Marking and Ordering Information

Part #	Marking	Package	Packing	Qty
FSD30S20AT	D30S20	TO-220-2L	Tube	50
FSD30S40TTD	D30S40D	TO-220-3L	Tube	50

Maximum Ratings (Per Leg) @TA=25°C unless otherwise specified

Symbol	Parameter	Values	Units
V_{RRM}	Peak Repetitive Reverse Voltage	300	V
V_{RWM}	Working Peak Reverse Voltage		
V_{RM}	DC Blocking Voltage		
$I_{F(AV)}$	Average Rectified Forward Current Per Leg (Rate V_R) $T_C=150^\circ\text{C}$ Per Package	20	A
I_{FSM}	Non-repetitive Peak Surge Current (8.3ms, half sine wave)	310	A
I_{RRM}	Peak Repetitive Reverse Surge Current (2.0 μs , 1.0kHz)	2.5	A
T_J	Operating Junction Temperature Range	-55 to +150	°C
T_{stg}	Storage Temperature	-55 to +150	°C

**Thermal Characteristics (Per Leg)**

Symbol	Parameter	Values			Unit
		Min.	Typ.	Max.	
R_{thJC}	Thermal resistance, Junction-case	-	-	0.7	°C/W
R_{thJA}	Thermal resistance, Junction-ambient(min. footprint)	-	-	60	°C/W

Electrical Characteristics (Per Leg)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_F	Diode forward voltage	$I_F=3A, T_j=25^\circ C$	-	0.73	0.83	V
		$I_F=3A, T_j=150^\circ C$	-	0.58	0.65	
		$I_F=20A, T_j=25^\circ C$	-	0.91	0.97	
		$I_F=20A, T_j=150^\circ C$	-	0.78	0.85	
I_R	Reverse current	$V_R=300V, T_j=25^\circ C$	-	-	3	μA
		$V_R=300V, T_j=150^\circ C$	-	-	1	mA
T_{rr}	Reverse Recovery Time	$V_R=30V, I_F=0.5A,$ $di/dt=100A/\mu S, T_j=25^\circ C$	-	27	-	nS
Q_{rr}	Reverse Recovery Charge		-	25	-	μC



Typical Performance Characteristics(Per Leg)

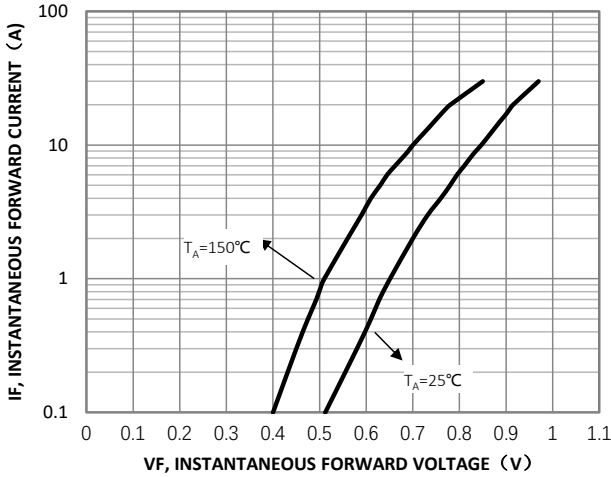


Fig1. Typical Forward Characteristics

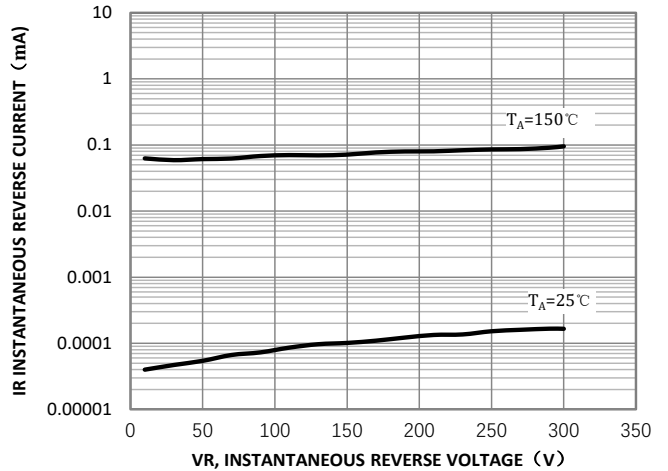


Fig2. Typical Reverse Characteristics

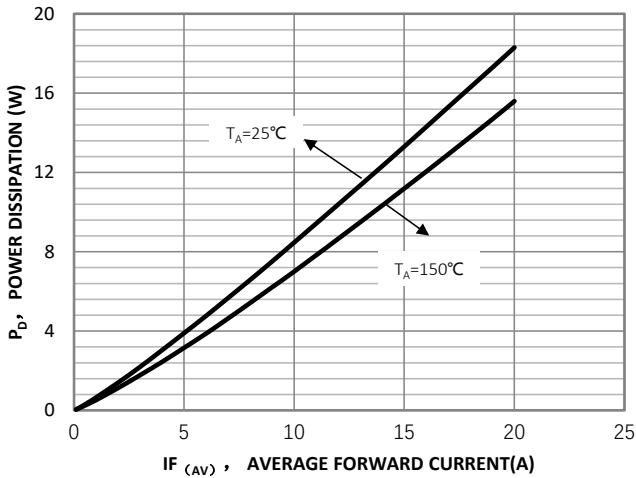


Fig3. Typical Power Dissipation

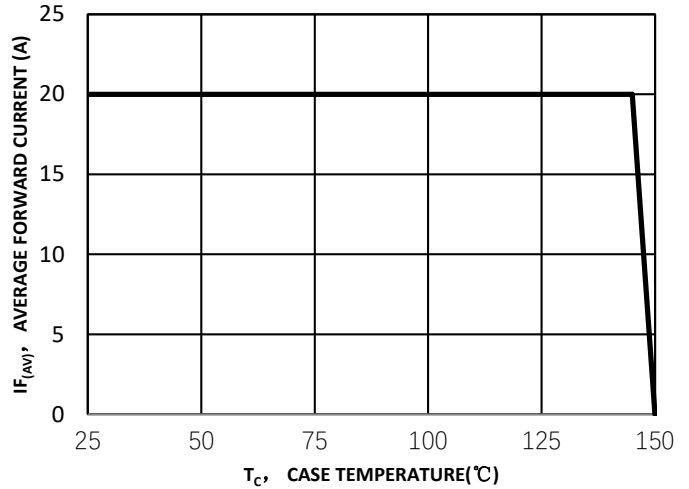
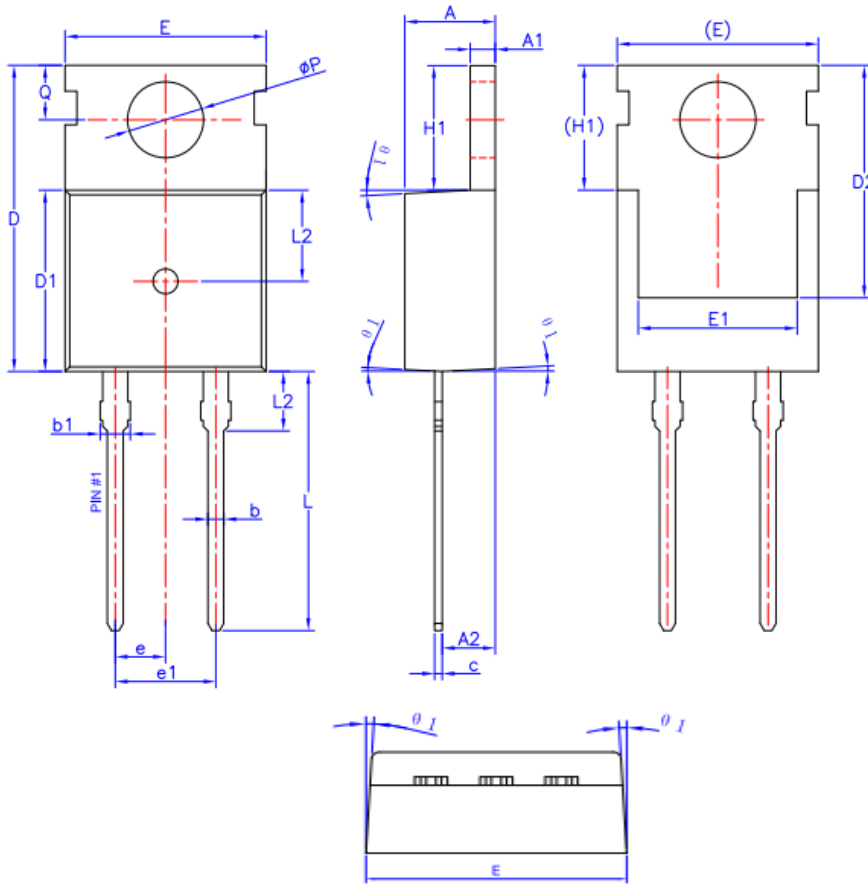
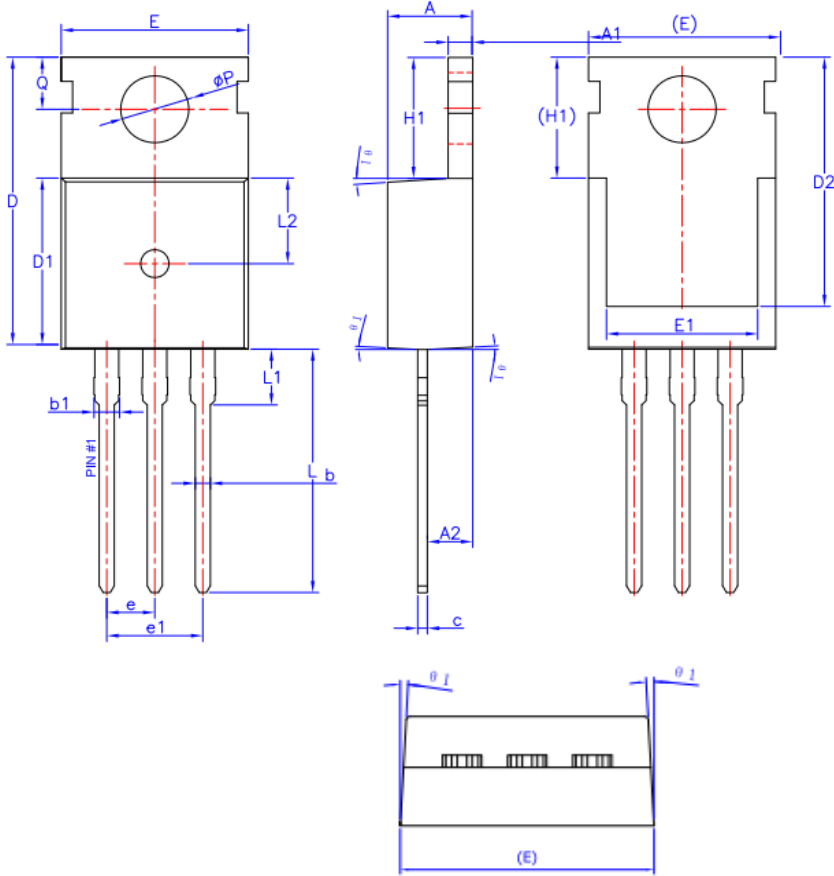


Fig4. Forward Current Derating Curve

Package Outline: TO-220-2L


SYMBOL	MIN	NOM	MAX
A	4.40	4.50	4.60
A1	1.27	1.30	1.33
A2	2.30	2.40	2.50
b	0.70	-	0.90
b1	1.42	-	1.57
c	0.45	0.50	0.60
D	15.30	15.70	16.10
D1	9.10	9.20	9.30
D2	13.10	-	13.70
E	9.70	9.90	10.20
E1	7.80	8.00	8.20
e	2.54BSC		
e1	5.08BSC		
H1	6.30	6.50	6.70
L	12.78	13.08	13.38
L1	-	-	3.50
L2	4.60REF		
∅P	3.55	3.60	3.65
Q	2.73	-	2.87
θ1	1°	3°	5°

Package Outline: TO-220-3L


SYMBOL	MIN	NOM	MAX
A	4.40	4.50	4.60
A1	1.27	1.30	1.33
A2	2.30	2.40	2.50
b	0.70	-	0.90
b1	1.27	-	1.40
c	0.45	0.50	0.60
D	15.30	15.70	16.10
D1	9.10	9.20	9.30
D2	13.10	-	13.70
E	9.70	9.90	10.20
E1	7.80	8.00	8.20
e	2.54BSC		
e1	5.08BSC		
H1	6.30	6.50	6.70
L	12.78	13.08	13.38
L1	-	-	3.50
L2	4.60REF		
ϕP	3.55	3.60	3.65
Q	2.73	-	2.87
$\theta 1$	1°	3°	5°