

## 1200-V Fast Recovery Diode

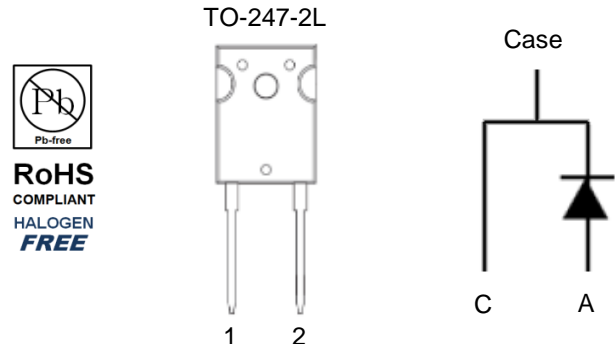
### Key Features:

- Ultra-fast recovery behavior
- Easy paralleling
- Positive temperature coefficient
- Small switching losses

### Typical Applications:

- Soft switching topologies
- Secondary side rectification

PRODUCT SUMMARY		
$V_{BR}$ (V)	$V_F$ (V)	$I_{F(AV)}$ (A)
1200	2.9	40



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Units
Cathode-Anode Voltage		$V_{BR}$	1200	V
Diode Forward Current <sup>a</sup>	$T_C=25^\circ\text{C}$	$I_{F(AV)}$	40	A
Single Pulse Forward Current <sup>b</sup>	$T_C=25^\circ\text{C}$	$I_{FSM}$	105	A
Joule Integral		$i^2t$	80	$\text{A}^2\cdot\text{s}$
Power Dissipation <sup>a</sup>	$T_C=25^\circ\text{C}$	$P_D$	125	W
Storage Temperature Range		$T_{stg}$	-55 to 150	$^\circ\text{C}$
Operating Junction Temperature		$T_J$	-40 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS			
Parameter	Symbol	Maximum	Units
Maximum Junction-to-Ambient <sup>c</sup>	$R_{\theta JA}$	40	$^\circ\text{C}/\text{W}$
Maximum Junction-to-Case	$R_{\theta JC}$	1	

### Notes

- Package Limited
- Pulse width limited by maximum junction temperature
- Surface Mounted on 1" x 1" FR4 Board.

## Electrical Characteristics

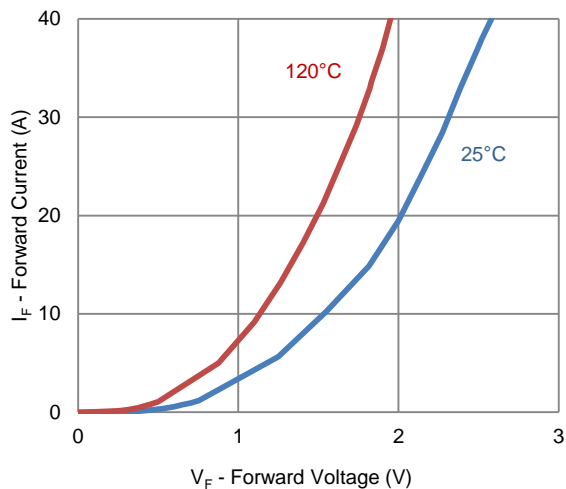
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static</b>						
Forward Voltage <sup>a</sup>	V <sub>F</sub>	I <sub>F</sub> = 40 A		2.6		V
		I <sub>F</sub> = 40 A, T <sub>J</sub> = 120°C		2		
Repetitive Peak Reverse Voltage	V <sub>RRM</sub>	T <sub>J</sub> = -40°C to 120°C	1200			V
Junction Capacitance	C <sub>J</sub>	V <sub>R</sub> = 200 V, V <sub>sine</sub> = 0.6 V <sub>eff</sub> , f = 100 kHz		59		pF
Reverse Leakage Current	I <sub>R</sub>	V <sub>R</sub> = 1200 V			100	uA
		V <sub>R</sub> = 1200 V, T <sub>J</sub> = 120°C			600	uA
<b>Dynamic <sup>b</sup></b>						
Reverse Recovery Time	T <sub>rr</sub>	I <sub>F</sub> = 40 A, dI/dt = 100 A/us, T <sub>J</sub> = 25°C		318		ns
Reverse Recovery Charge	Q <sub>rr</sub>			994		nC
Peak Recovery Current	I <sub>RRM</sub>			4.7		A
Reverse Recovery Time	T <sub>rr</sub>	I <sub>F</sub> = 40 A, dI/dt = 100 A/us, T <sub>J</sub> = 120°C		553		ns
Reverse Recovery Charge	Q <sub>rr</sub>			2405		nC
Peak Recovery Current	I <sub>RRM</sub>			6.4		A
Reverse Recovery Time	T <sub>rr</sub>	I <sub>F</sub> = 40 A, dI/dt = 500 A/us, T <sub>J</sub> = 25°C		178		ns
Reverse Recovery Charge	Q <sub>rr</sub>			2250		nC
Peak Recovery Current	I <sub>RRM</sub>			19.5		A
Reverse Recovery Time	T <sub>rr</sub>	I <sub>F</sub> = 40 A, dI/dt = 500 A/us, T <sub>J</sub> = 120°C		303		ns
Reverse Recovery Charge	Q <sub>rr</sub>			5310		nC
Peak Recovery Current	I <sub>RRM</sub>			26.2		A

## Notes

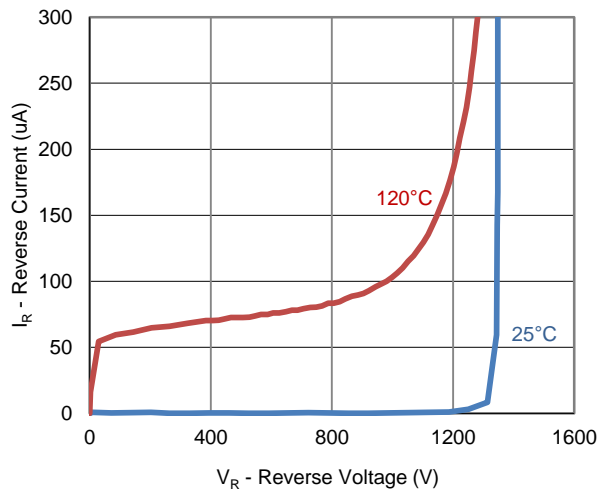
- Pulse test: PW ≤ 300us duty cycle ≤ 2%.
- Guaranteed by design, not subject to production testing.

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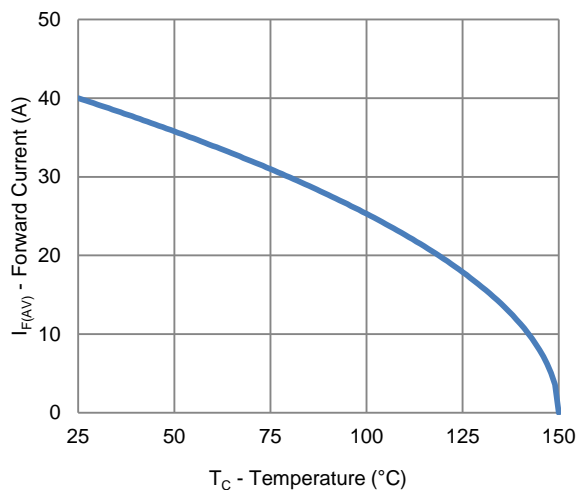
Typical Electrical Characteristics



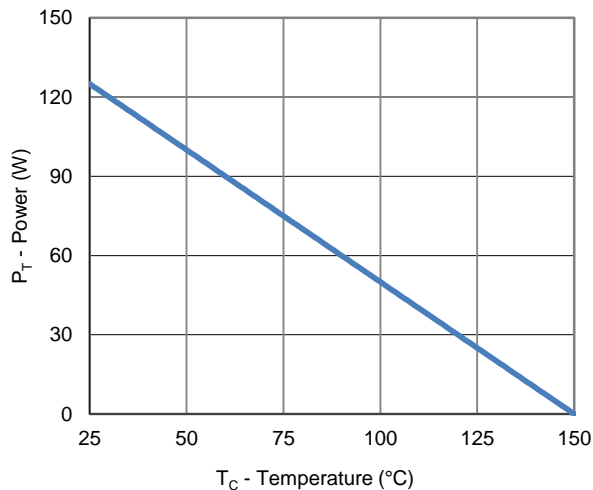
1. Forward Characteristics



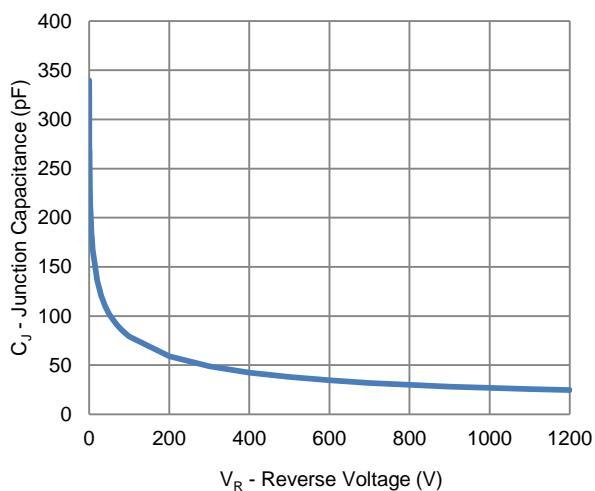
2. Reverse Characteristics



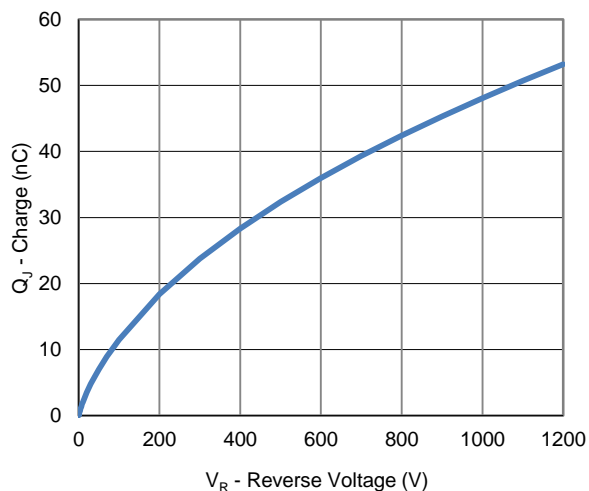
3. Current Derating



4. Power Derating

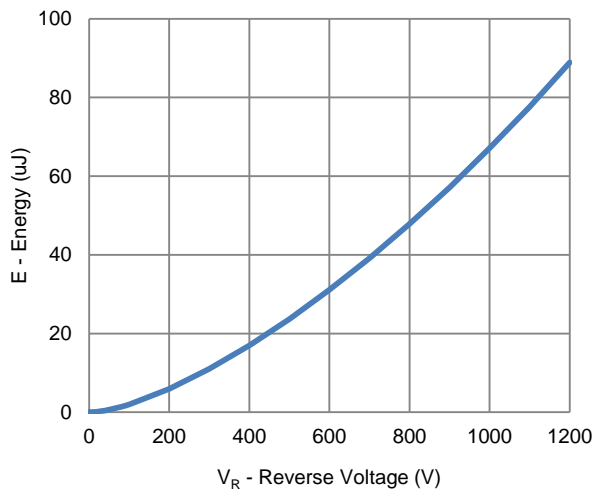


5. Junction Capacitance vs. Reverse Voltage

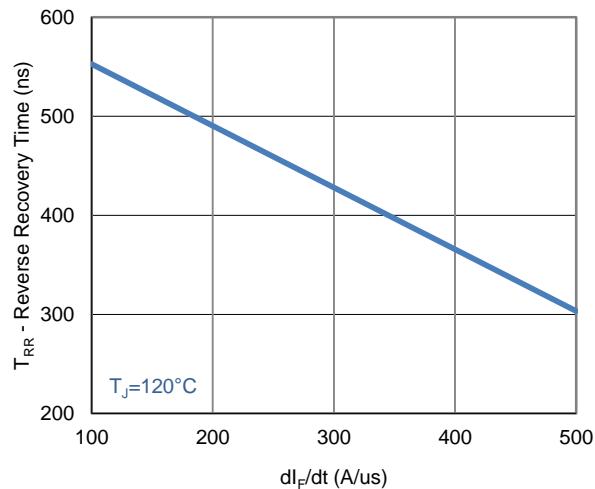


6. Total Capacitance Charge vs. Reverse Voltage

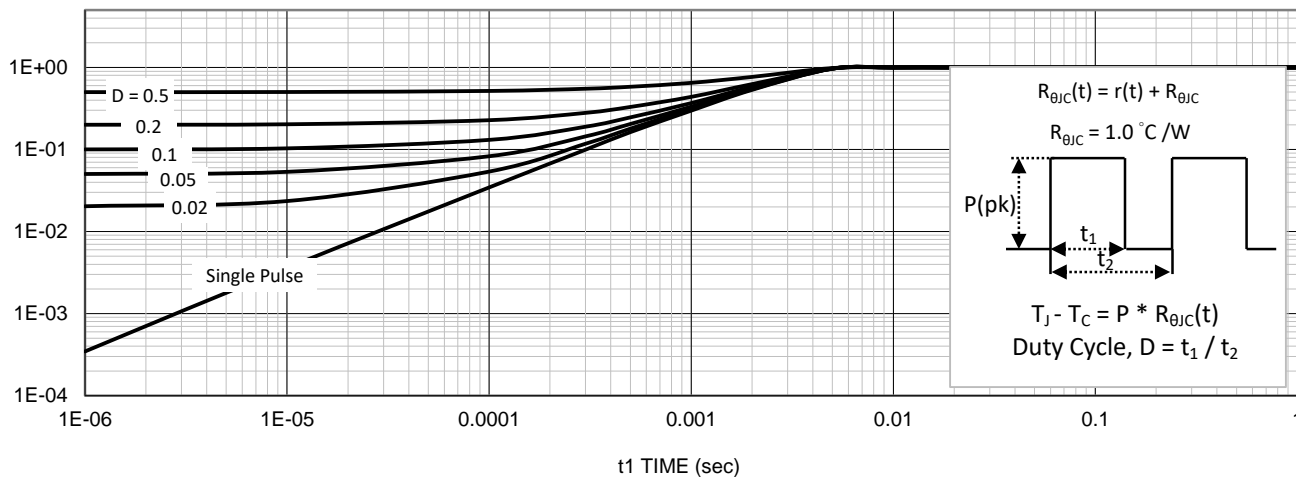
Typical Electrical Characteristics



7. Capacitance Stored Energy vs. Reverse Voltage

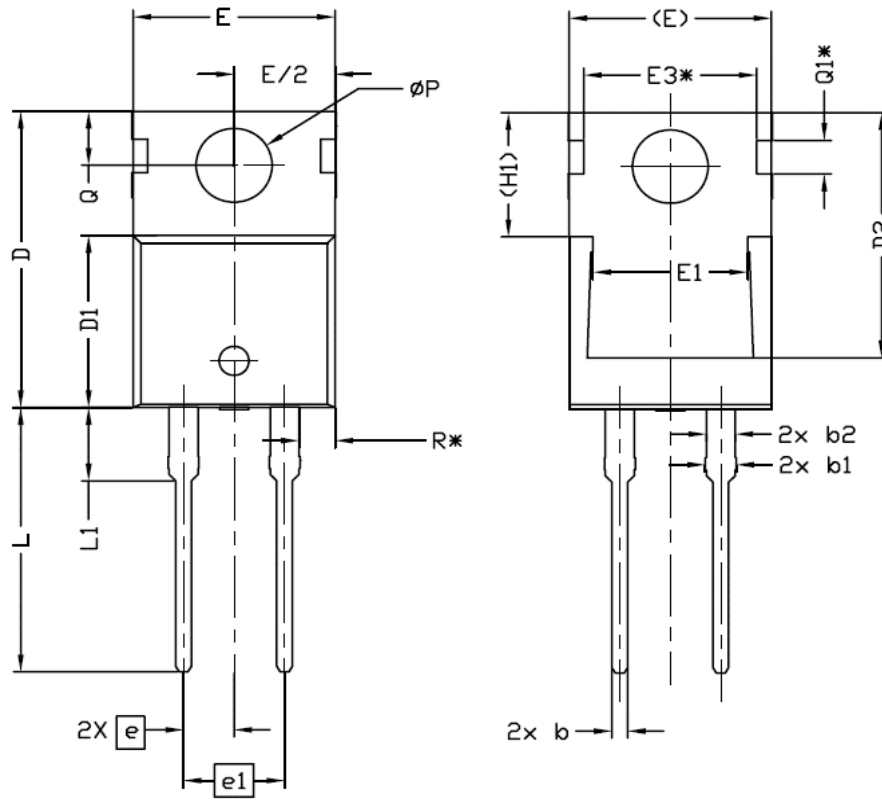


8. Reverse Recovery Time vs.  $dI_F/dt$



9. Thermal Transient Junction to Ambient

Package Information



SYMBOL	DIMENSIONS		
	MIN.	NOM.	MAX.
A	4,24	4,44	4,64
A1	1,15	1,27	1,40
A2	2,30	2,48	2,70
b	0,70	0,80	0,90
b1	1,20	1,55	1,75
b2	1,20	1,45	1,70
c	0,40	0,50	0,60
D	14,70	15,37	16,00
D1	8,82	8,92	9,02
D2	12,43	12,73	12,83
E	9,96	10,16	10,36
E1	6,86	7,77	8,89
E3*	8,70REF.		
e	2,54BSC		
e1	5,08BSC		
H1	6,30	6,45	6,60
L	13,47	13,72	13,97
L1	3,60	3,80	4,00
$\phi P$	3,75	3,84	3,93
Q	2,60	2,80	3,00
Q1*	1,73REF.		
R*	1,82REF.		