

Technical Data
Data Sheet 2907, Rev. A

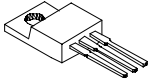
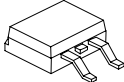
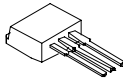
47CTQ020/47CTQ020S/47CTQ020-1
SCHOTTKY RECTIFIER

Applications:

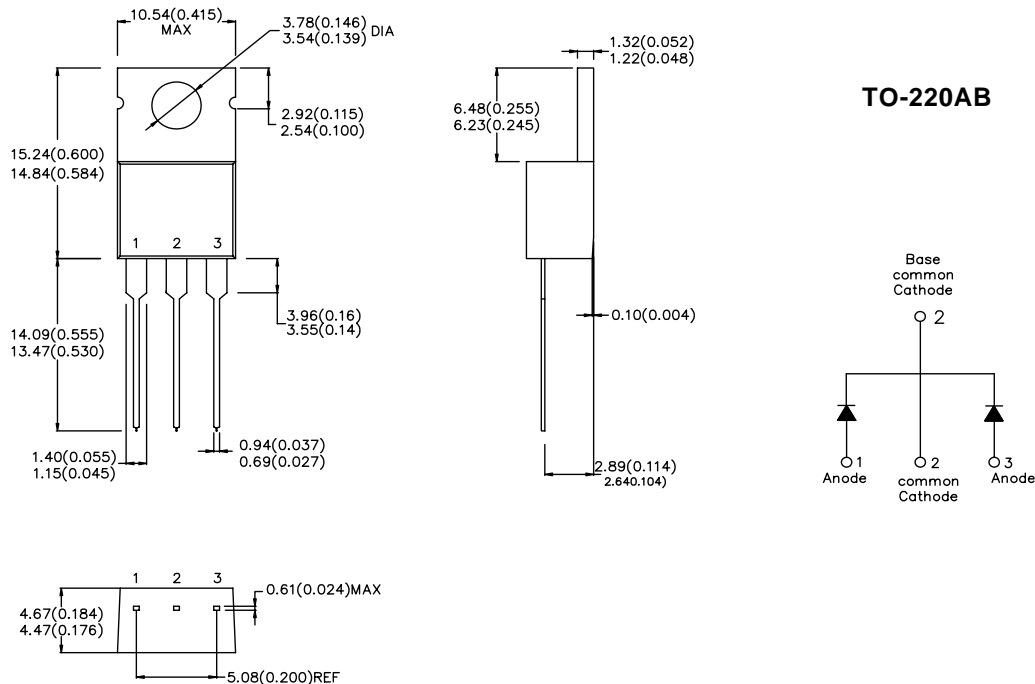
- Parallel switching power supply • Converters • Free-Wheeling diodes
- Reverse battery protection

Features:

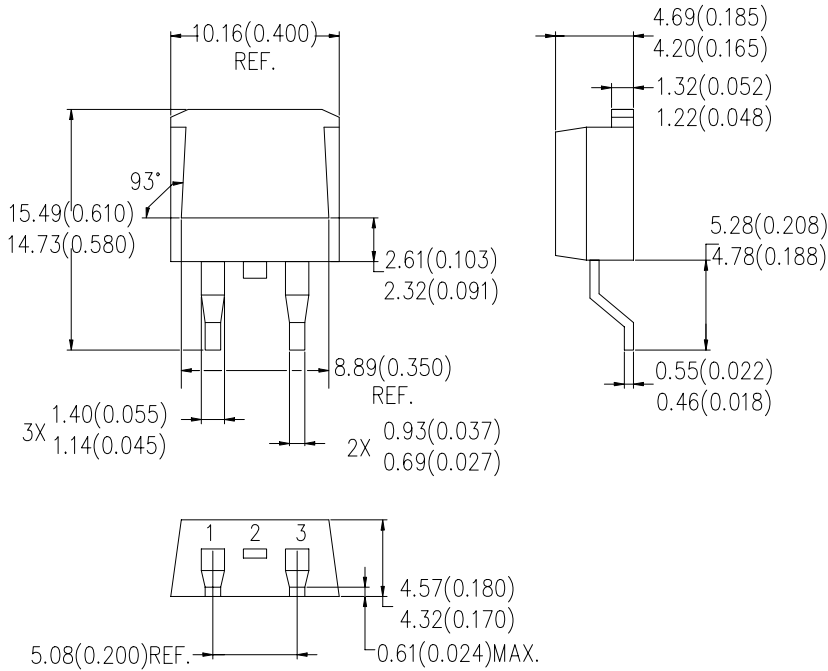
- 150 °C T_J operation
- Center tap configuration
- Optimized for 3.3V application
- Ultra Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

Case Styles		
47CTQ020	47CTQ020S	47CTQ020-1
		
TO-220AB	D²PAK	TO-262

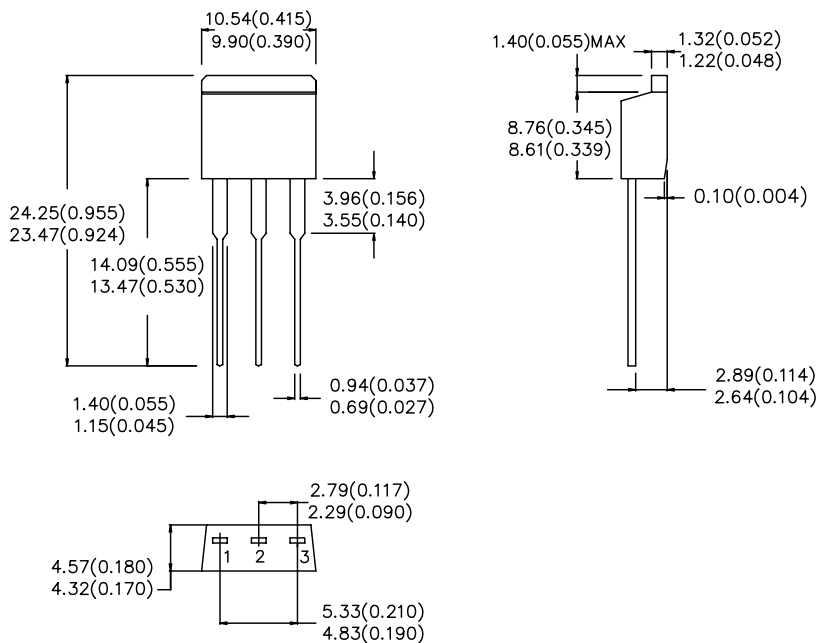
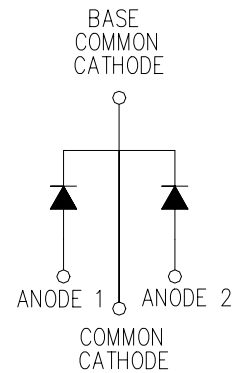
Mechanical Dimensions: In Inches / mm



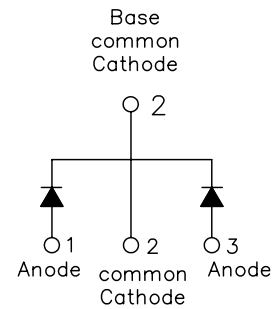
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D²PAK



TO-262



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Maximum Ratings:

Characteristics	Symbol	Condition	Max.	Units
Peak Inverse Voltage	V_{RWM}	-	20	@125 °C
			10	@150 °C
Max. Average Forward Current	$I_{F(AV)}$	50% duty cycle @ $T_C = 135$ °C, rectangular wave form	20 (per leg)	A
			40 (per device)	
Max. Peak One Cycle Non-Repetitive Surge Current (per leg)	I_{FSM}	8.3 ms, half Sine pulse	300	A
Non-Repetitive Avalanche Energy (per leg)	E_{AS}	$T_J = 25$ °C, $I_{AS} = 3$ A, $L = 3$ mH	18	mJ
Repetitive Avalanche Current (per leg)	I_{AR}	Current decaying linearly to zero in 1 μ sec Frequency limited by T_J max. $V_A = 1.5 \times V_R$ typical	3	A

Electrical Characteristics:

Characteristics	Symbol	Condition	Max.	Units
Max. Forward Voltage Drop (per leg) *	V_{F1}	@ 20 A, Pulse, $T_J = 25$ °C	0.45	V
		@ 40 A, Pulse, $T_J = 25$ °C	0.51	
	V_{F2}	@ 20 A, Pulse, $T_J = 125$ °C	0.34	V
		@ 40 A, Pulse, $T_J = 125$ °C	0.44	
	V_{F3}	@ 20 A, Pulse, $T_J = 150$ °C	0.31	V
		@ 40 A, Pulse, $T_J = 150$ °C	0.42	
Max. Reverse Current (per leg) *	I_{R1}	@ $V_R =$ rated V_R , $T_J = 25$ °C	3	mA
	I_{R2}	@ $V_R =$ rated V_R , $T_J = 125$ °C	310	mA
	I_{R3}	@ $V_R = 5$ V, $T_J = 125$ °C	60	mA
	I_{R4}	@ $V_R = 3.3$ V, $T_J = 125$ °C	45	mA
	I_{R5}	@ $V_R = 10$ V, $T_J = 150$ °C	306	mA
Max. Junction Capacitance (per leg)	C_T	@ $V_R = 5$ V, $T_C = 25$ °C $f_{SIG} = 1$ MHz	3000	pF
Typical Series Inductance (per leg)	L_S	Measured lead to lead 5 mm from package body	5.5	nH
Max. Voltage Rate of Change	dv/dt	-	10,000	V/ μ s

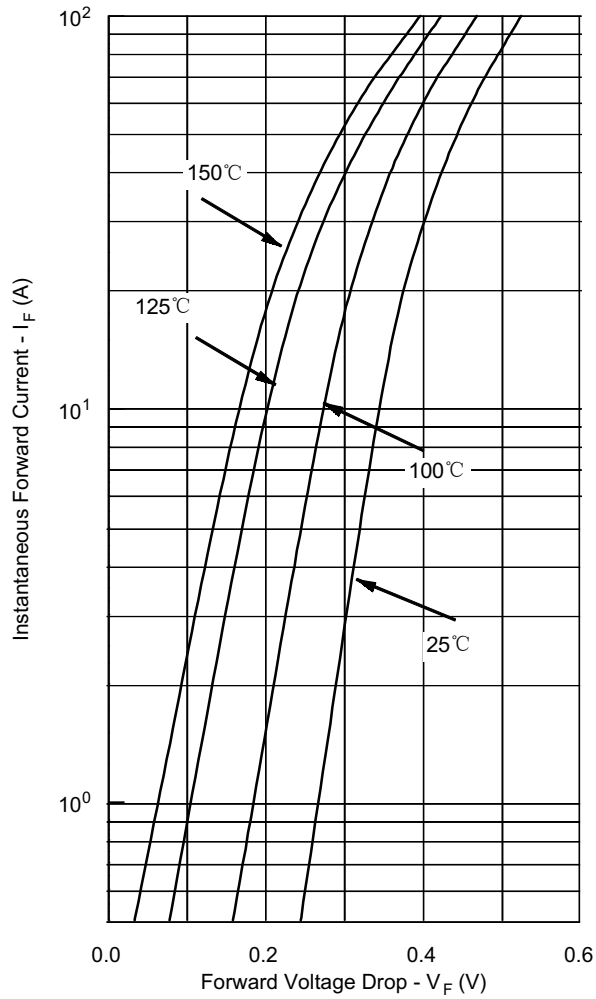
* Pulse Width < 300 μ s, Duty Cycle <2%

Thermal-Mechanical Specifications:

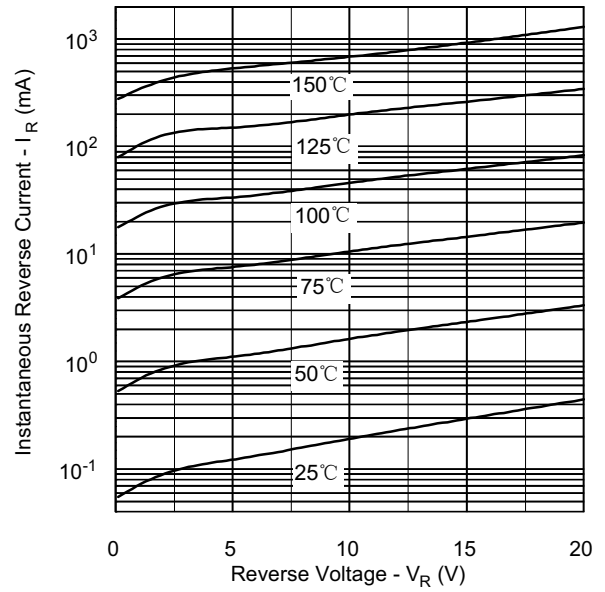
Characteristics	Symbol	Condition	Specification	Units
Max. Junction Temperature	T_J	-	-55 to +150	°C
Max. Storage Temperature	T_{stg}	-	-55 to +150	°C
Maximum Thermal Resistance Junction to Case (per leg)	$R_{\theta JC}$	DC operation	1.5	°C/W
Maximum Thermal Resistance Junction to Case (per package)	$R_{\theta JC}$	DC operation	0.75	°C/W
Maximum Thermal Resistance, Case to Heat Sink	$R_{\theta CS}$	Mounting surface, smooth and greased	0.50	°C/W
Approximate Weight	wt	-	2	g
Mounting Torque	T_M	-	6(Min.) 12(Max.)	Kg-cm
Case Style	TO-220AB D ² PAK TO-262 (suffix "s" for D ² PAK; Suffix "-1" for TO-262)			

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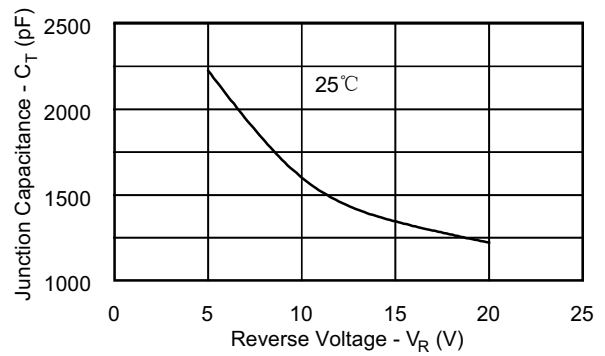
Typical Forward Characteristics



Typical Reverse Characteristics



Typical Junction Capacitance



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