

Technical Data
Data Sheet 2874, Rev. -

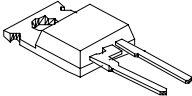
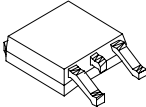
12TQ035/S/12TQ040/S/12TQ045/S
SCHOTTKY RECTIFIER

Applications:

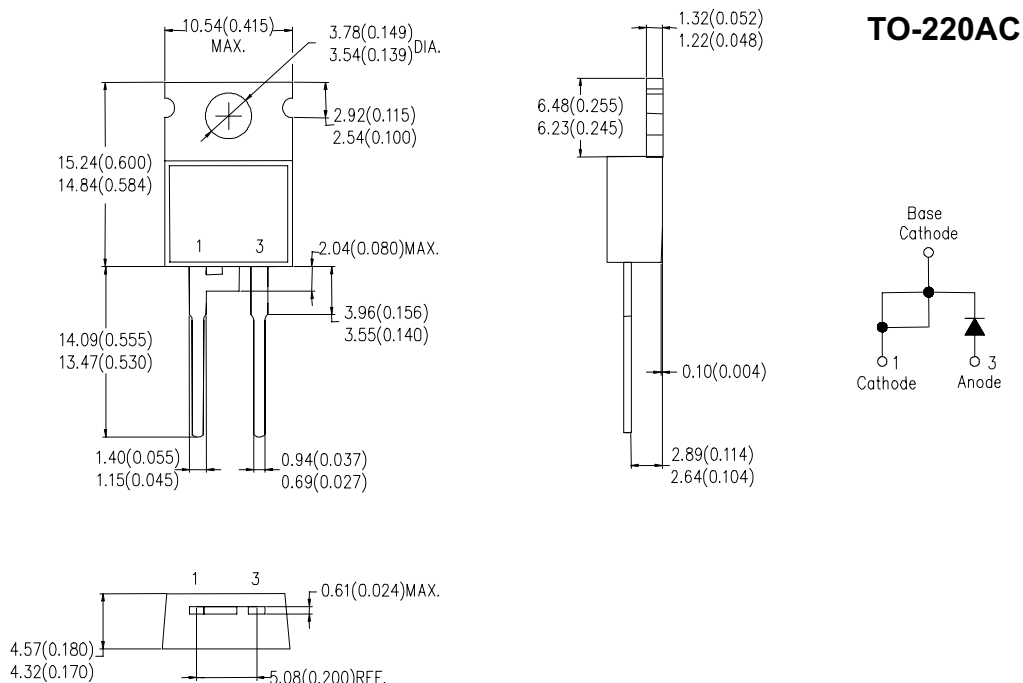
- Switching power supply • Converters • Free-Wheeling diodes • Reverse battery protection

Features:

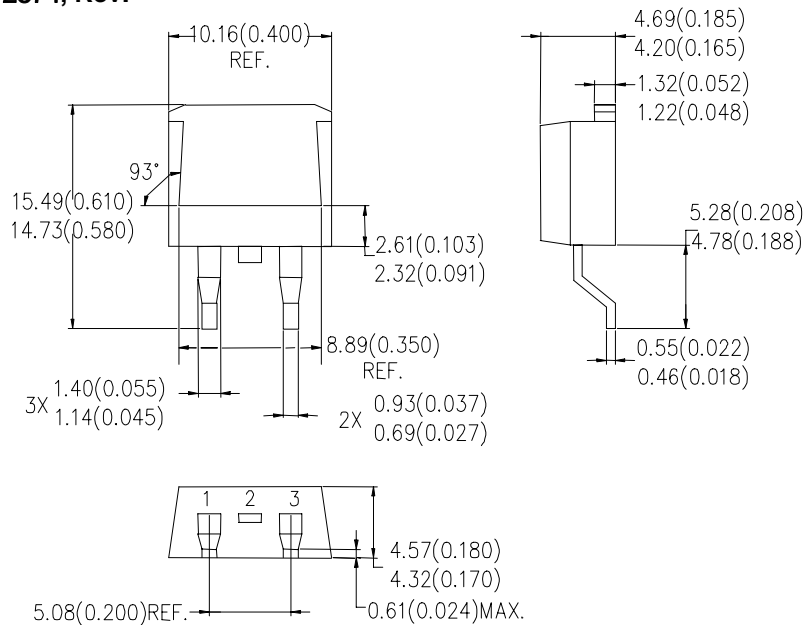
- 150°C T_J operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

Case styles	
<p>12TQ...</p>  <p>TO-220AC</p>	<p>12TQ...S</p>  <p>D²PAK</p>

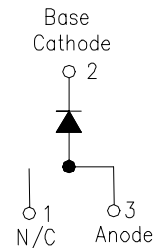
Mechanical Dimensions: In Inches / mm



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D²-PAK



Maximum Ratings:

Characteristics	Symbol	Condition	Max.	Units
Peak Inverse Voltage	V_{RWM}	-	35(12TQ030) 40(12TQ040) 45(12TQ045)	V
Max. Average Forward Current	$I_{F(AV)}$	50% duty cycle @ $T_C = 120^\circ\text{C}$, rectangular wave form	15	A
Max. Peak One Cycle Non-Repetitive Surge Current	I_{FSM}	8.3 ms, half Sine pulse	300	A
Non-Repetitive Avalanche Energy	E_{AS}	$T_J = 25^\circ\text{C}$, $I_{AS} = 2.4\text{ A}$, $L = 5.5\text{ mH}$	16	mJ
Repetitive Avalanche Current	I_{AR}	Current decaying linearly to zero in 1 μsec Frequency limited by T_J max. $V_A = 1.5 \times V_R$ typical	2.4	A

Electrical Characteristics:

Characteristics	Symbol	Condition	Max.	Units
Max. Forward Voltage Drop *	V_{F1}	@ 15 A, Pulse, $T_J = 25^\circ\text{C}$	0.56	V
	V_{F2}	@ 30 A, Pulse, $T_J = 25^\circ\text{C}$	0.71	V
Max. Reverse Current *	I_{R1}	@ $V_R = \text{Rated } V_R$, Pulse, $T_J = 25^\circ\text{C}$	1.75	mA
	I_{R2}	@ $V_R = \text{Rated } V_R$, Pulse, $T_J = 125^\circ\text{C}$	70	mA
Max. Junction Capacitance	C_T	@ $V_R = 5\text{ V}$, $T_C = 25^\circ\text{C}$ $f_{SIG} = 1\text{ MHz}$	900	pF
Typical Series Inductance	L_S	Measured lead to lead 5 mm from package body	8.0	nH
Max. Voltage Rate of Change	dv/dt	-	10,000	V/ μs

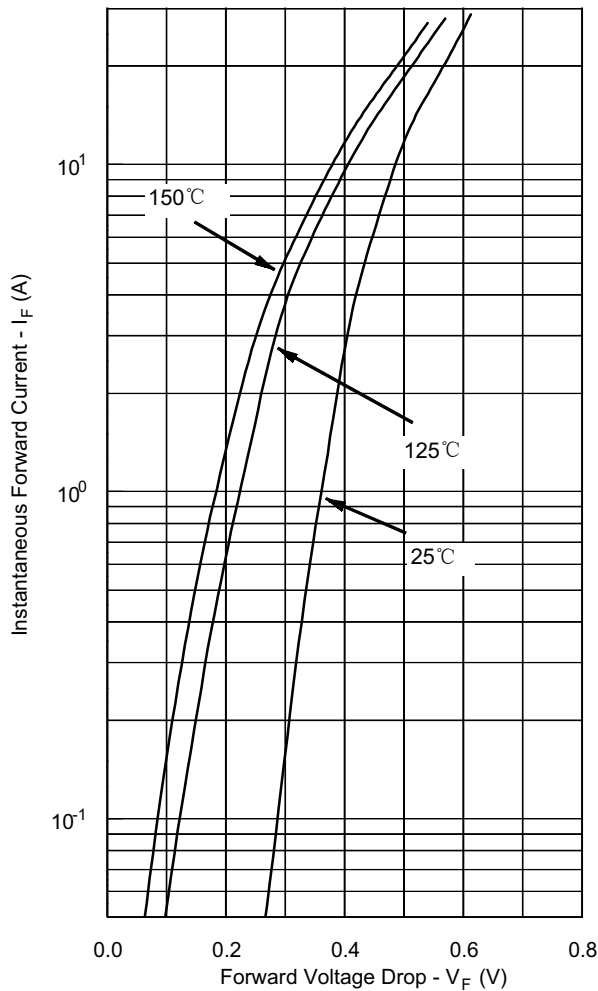
* Pulse Width < 300 μs , Duty Cycle < 2%

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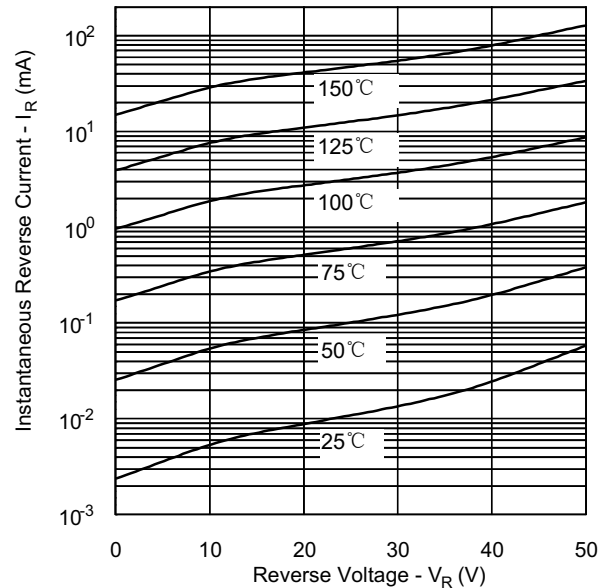
Thermal-Mechanical Specifications:

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	$R_{\theta JC}$	DC operation	2.0	°C/W
Typical 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-220AC D ² PAK (Suffix "s" for D ² PAK; "MBRB xxxx" for D ² PAK)			

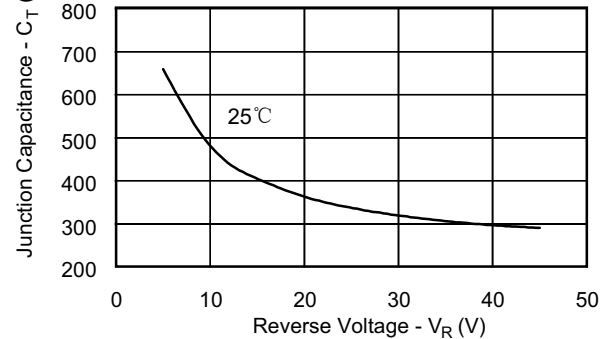
Typical Forward Characteristics



Typical Reverse Characteristics



Typical Junction Capacitance



TECHNICAL DATA

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