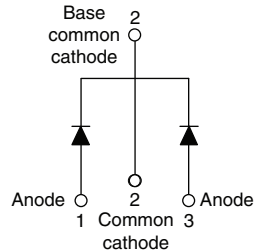


Schottky Rectifier, 2 x 20 A


TO-220AB


FEATURES

- 175 °C T_J operation
- Center tap configuration
- 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
- Lead (Pb)-free ("PbF" suffix)
- Designed and qualified for industrial level


RoHS*
COMPLIANT

PRODUCT SUMMARY

$I_{F(AV)}$	2 x 20 A
V_R	100 V

DESCRIPTION

This center tap Schottky rectifier series has been optimized for low reverse leakage at high temperature. The proprietary barrier technology allows for reliable operation up to 175 °C junction temperature. Typical applications are in switching power supplies, converters, freewheeling diodes, and reverse battery protection.

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Rectangular waveform	40	A
V_{RRM}		100	V
I_{FSM}	$t_p = 5 \mu s$ sine	850	A
V_F	20 Apk, $T_J = 125 \text{ }^\circ\text{C}$ (per leg)	0.67	V
T_J	Range	- 55 to 175	$^\circ\text{C}$

VOLTAGE RATINGS

PARAMETER	SYMBOL	43CTQ100PbF	UNITS
Maximum DC reverse voltage	V_R	100	V
Maximum working peak reverse voltage	V_{RWM}		

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current per leg See fig. 5	$I_{F(AV)}$	50 % duty cycle at $T_C = 135 \text{ }^\circ\text{C}$, rectangular waveform	20	A
			40	
Maximum peak one cycle non-repetitive surge current per leg See fig. 7	I_{FSM}	5 μs sine or 3 μs rect. pulse	850	
		10 ms sine or 6 ms rect. pulse	275	
Non-repetitive avalanche energy per leg	E_{AS}	$T_J = 25 \text{ }^\circ\text{C}$, $I_{AS} = 0.50 \text{ A}$, $L = 60 \text{ mH}$	7.50	mJ
Repetitive avalanche current per leg	I_{AR}	Current decaying linearly to zero in 1 μs Frequency limited by T_J maximum $V_A = 1.5 \times V_R$ typical	0.50	A

* Pb containing terminations are not RoHS compliant, exemptions may apply

ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop per leg See fig. 1	$V_{FM}^{(1)}$	20 A	$T_J = 25\text{ }^\circ\text{C}$	0.81	V
		40 A		0.98	
		20 A	$T_J = 125\text{ }^\circ\text{C}$	0.67	
		40 A		0.81	
Maximum reverse leakage current per leg See fig. 2	$I_{RM}^{(1)}$	$T_J = 25\text{ }^\circ\text{C}$	$V_R = \text{Rated } V_R$	1	mA
		$T_J = 125\text{ }^\circ\text{C}$		11	
Threshold voltage	$V_{F(TO)}$	$T_J = T_J \text{ maximum}$		0.71	V
Forward slope resistance	r_t			0.43	m Ω
Maximum junction capacitance per leg	C_T	$V_R = 5\text{ }V_{DC}$ (test signal range 100 kHz to 1 MHz) 25 $^\circ\text{C}$		1480	pF
Typical series inductance per leg	L_S	Measured lead to lead 5 mm from package body		8.0	nH
Maximum voltage rate of change	dV/dt	Rated V_R		10 000	V/ μs

Note(1) Pulse width < 300 μs , duty cycle < 2 %

THERMAL - MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum junction and storage temperature range	T_J, T_{Stg}			- 55 to 175	$^\circ\text{C}$
Maximum thermal resistance, junction to case per leg	R_{thJC}	DC operation		2.0	$^\circ\text{C/W}$
Maximum thermal resistance, junction to case per package				1.0	
Typical thermal resistance, case to heatsink	R_{thCS}	Mounting surface, smooth and greased		0.50	
Approximate weight				2	g
				0.07	oz.
Mounting torque	minimum			6 (5)	kgf · cm (lbf · in)
	maximum			12 (10)	
Marking device		Case style TO-220AB		43CTQ080	
				43CTQ100	

ORDERING INFORMATION TABLE

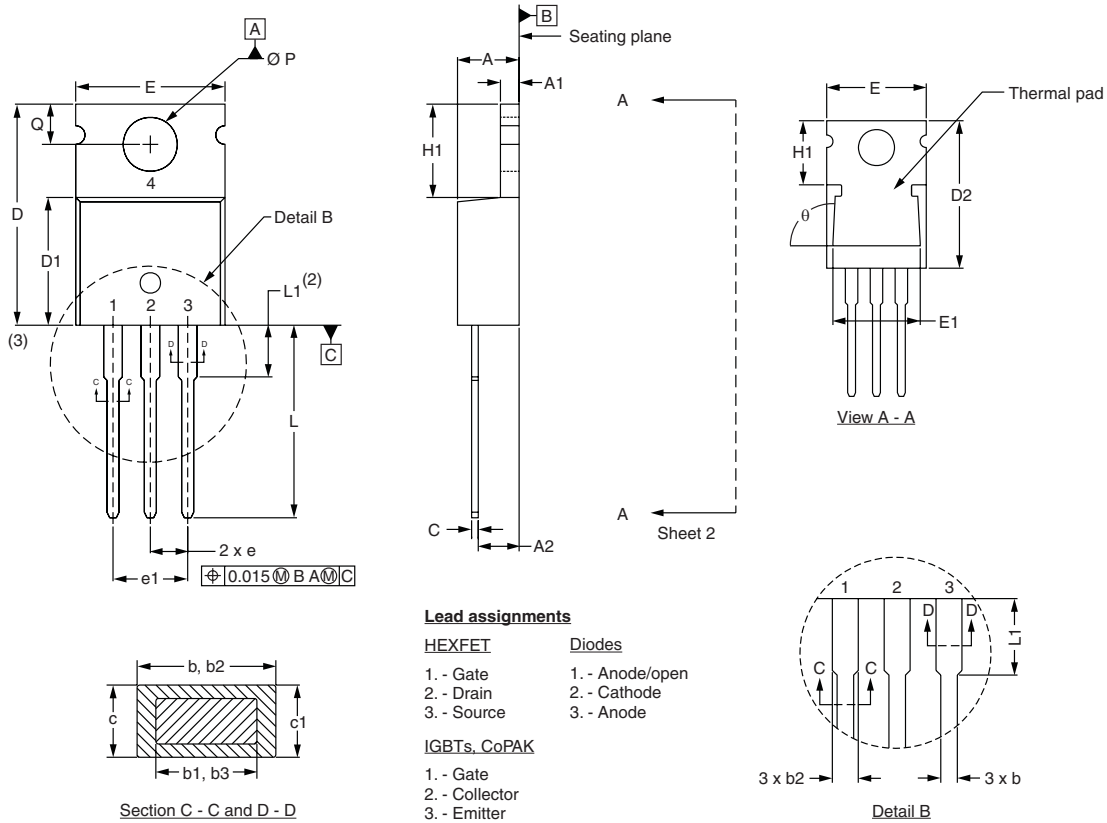
Device code	43	C	T	Q	100	PbF
	①	②	③	④	⑤	⑥

- 1** - Current rating (40 A)
- 2** - Circuit configuration:
C = Common cathode
- 3** - Package:
T = TO-220
- 4** - Schottky "Q" series
- 5** - Voltage rating (100 = 100 V)
- 6** -
 - None = Standard production
 - PbF = Lead (Pb)-free

Tube standard pack quantity: 50 pieces

TO-220AB

DIMENSIONS in millimeters and inches



SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	3.56	4.82	0.140	0.190	
A1	0.51	1.40	0.020	0.055	
A2	2.04	2.92	0.080	0.115	
b	0.38	1.01	0.015	0.040	
b1	0.38	0.96	0.015	0.038	4
b2	1.15	1.77	0.045	0.070	
b3	1.15	1.73	0.045	0.068	
c	0.36	0.61	0.014	0.024	
c1	0.36	0.56	0.014	0.022	4
c2	0.31	1.14	0.012	0.045	
D	14.22	15.87	0.560	0.625	3

SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
D1	8.38	9.02	0.330	0.355	
D2	12.19	12.88	0.480	0.507	
E	9.66	10.66	0.380	0.420	3
E1	8.38	8.89	0.330	0.350	
e	2.54 BSC		0.100 BSC		
H1	5.85	6.86	0.230	0.270	
L	12.70	14.73	0.500	0.580	
L1	-	6.35	-	0.250	2
$\emptyset P$	3.54	3.73	0.139	0.147	
Q	2.54	3.05	0.100	0.120	
θ	90° to 93°		90° to 93°		

Notes

- (1) Dimensioning and tolerancing per ASME Y14.5M-1994
- (2) Lead dimension and finish uncontrolled in L1
- (3) Dimension D and E do not include mold flash. Mold flash shall not exceed 0.127 mm (0.005") per side. These dimensions are measured at the outermost extremes of the plastic body
- (4) Dimension b1 and c1 apply to base metal only
- (5) Controlling dimensions: inches