

# DSA15IM45UC

## 45 V, 15 A Schottky Rectifier Diode

RoHS

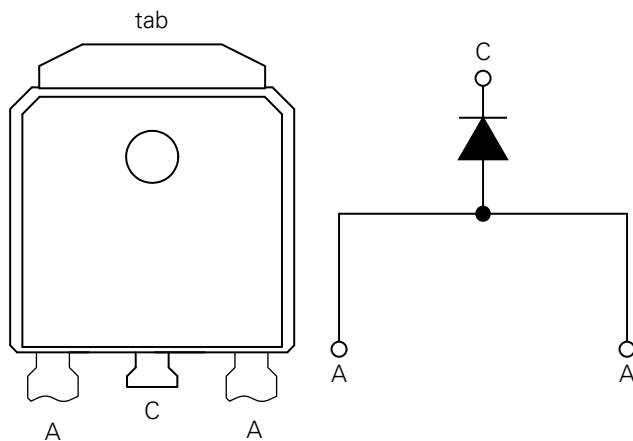
Pb



### Features:

- Very low  $V_f$
- Extremely low switching losses
- Low  $I_{rm}$  values
- Improved thermal behavior
- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching
- Terminals finish: 100% Pure Tin
- This is a Pb – Free Device
- Epoxy meets UL 94V-0

### Pinout Diagram (TO-252AA)



**C:** Cathode; **A:** Anode; **tab:** Cathode

### Applications:

- Rectifiers in Switch Mode Power Supplies (SMPS)
- Free wheeling diode in low voltage converters

**Maximum Ratings** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

Symbol	Characteristics	Condition	Max.	Units
$V_{RRM}$	Peak Repetitive Reverse Voltage	–	45	V
$V_{RWM}$	Working Peak Reverse Voltage			
$V_R$	DC Blocking Voltage			
$I_{F(AV)}$	Average Rectified Forward Current	50% duty cycle @ $T_C=150^\circ\text{C}$ , rectangular wave form	15	A
$I_{FSM}$	Peak One Cycle Non-Repetitive Surge Current	10 ms, Half Sine pulse, $T_J=25^\circ\text{C}$	300	A
$P_{tot}$	Total power dissipation	$T_C=25^\circ\text{C}$	75	W

**Electrical Characteristics** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

Symbol	Characteristics	Conditions	Typ.	Max.	Units
$V_{F1}$	Forward Voltage Drop <sup>1</sup>	@ 15A, Pulse, $T_J = 25^\circ\text{C}$	–	0.75	V
$V_{F2}$		@ 15A, Pulse, $T_J = 125^\circ\text{C}$	–	0.63	V
$I_{R1}$	Reverse Current*	@ $V_R = \text{rated } V_{R'}$ , $T_J = 25^\circ\text{C}$	–	250	$\mu\text{A}$
$I_{R2}$		@ $V_R = \text{rated } V_{R'}$ , $T_J = 125^\circ\text{C}$	–	2.5	mA
$C_T$	Junction Capacitance	@ $V_R = 24\text{V}$ , $T_C = 25^\circ\text{C}$ , $f_{SIG} = 1\text{MHz}$	256	–	pF

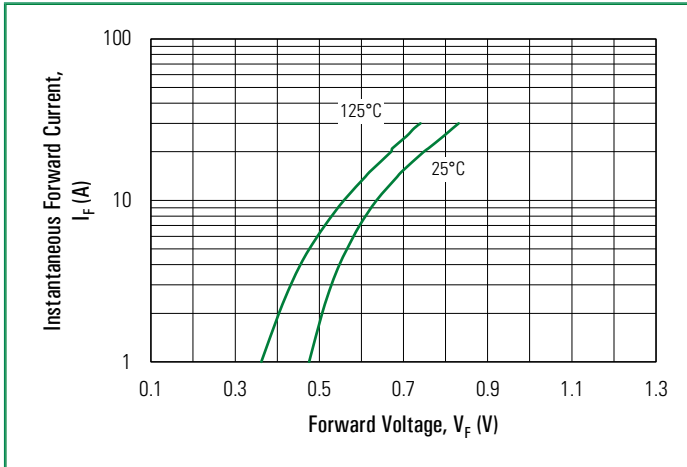
**Note 1:** Pulse width < 300  $\mu\text{s}$ , duty cycle < 2%

**Thermal-Mechanical Specifications**

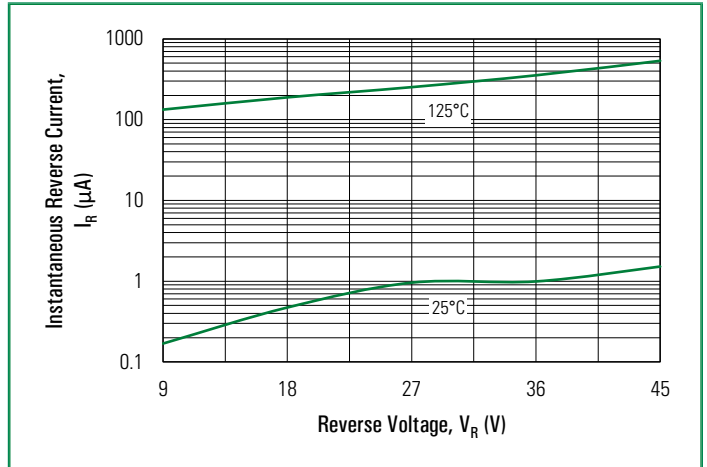
Symbol	Characteristics	Condition	Specification	Units
$T_J$	Junction Temperature	–	-55 to +175	$^\circ\text{C}$
$T_O$	Operation Temperature	–	-55 to +150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	–	-55 to +150	$^\circ\text{C}$
$F_C$	Mounting force with clip	–	Min 20 Max 60	N
$R_{\theta JC}$	Maximum Thermal Resistance Junction to Case	DC operation	2	$^\circ\text{C/W}$
$R_{\theta CS}$	Typical Thermal Resistance Case to Heat Sink	–	0.50	$^\circ\text{C/W}$
wt	Approximate Weight	–	0.39	g

## Characteristic Curves

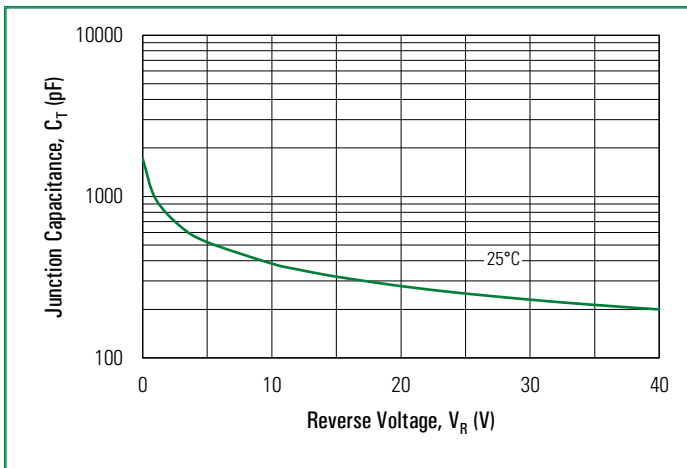
**Fig. 1. Typical Forward Characteristics**



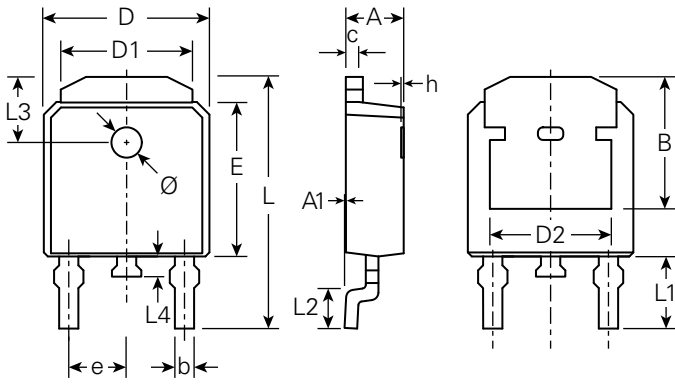
**Fig. 2. Typical Reverse Characteristics**



**Fig. 3. Typical Junction Capacitance**

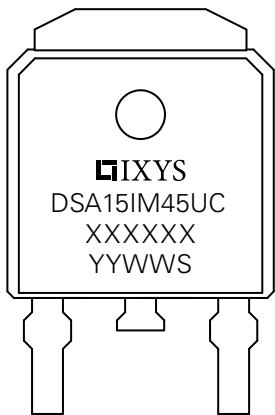


Part Outline Drawing (TO-252AA)



Symbol	Inches			Millimeters		
	Min.	Typical	Max.	Min.	Typical	Max
A	0.085	-	0.094	2.18	-	2.39
A1	-	-	0.005	-	-	0.13
b	0.025	-	0.035	0.64	-	0.89
c	0.018	-	0.035	0.46	-	0.89
D	0.250	-	0.264	6.35	-	6.73
D1	0.195	-	0.215	4.95	-	5.46
D2	0.170	-	-	4.32	-	-
E	0.235	0.240	0.245	5.97	6.10	6.22
e	0.090 BSC			2.29 BSC		
L	0.370	-	0.410	9.40	-	10.41
L1	0.114			2.90 REF		
L2	0.055	0.060	0.070	1.40	1.52	1.78
L3	0.063 REF			1.60 REF		
L4	-	-	0.040	-	-	1.02
Ø	0.043	-	0.051	1.10	-	1.30

Part Number and Marking

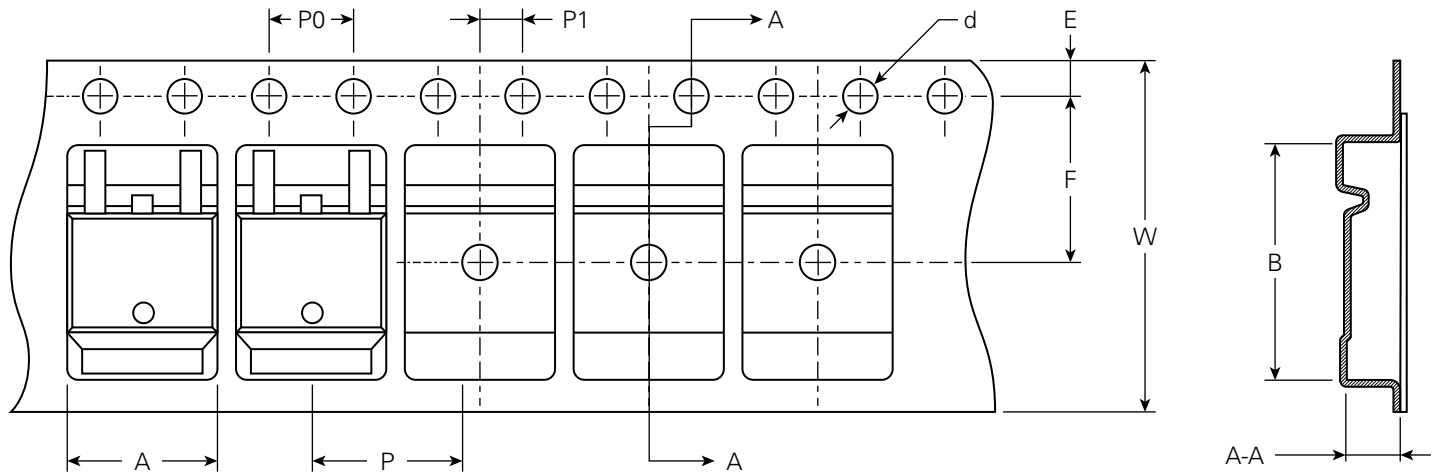


- DS = Schottky Diode
- A = Low VF
- 15 = Current Rate (15A)
- IM = Single Diode
- 45 = Voltage Rating (45V)
- UC = Package Code
- YY = Year
- WW = Work Week
- S = Plant Location Code
- XXXXXX = Lot Number

Ordering Information

Part Number	Marking	Packing Mode	Quantity
DSA15IM45UC-TRL	DSA15IM45UC	Reel	2500 pcs/ reel

Carrier Tape Specification (TO-252AA)



Symbol	Inches			Millimeters		
	Min.	Typical	Max.	Min.	Typical	Max.
A	0.267	-	0.276	6.80	-	7.00
B	0.409	-	0.417	10.40	-	10.60
C	0.102	-	0.110	2.60	-	2.80
d	Ø0.057	-	Ø0.065	Ø1.45	-	Ø1.65
E	0.065	-	0.073	1.65	-	1.85
F	0.291	-	0.299	7.40	-	7.60
P0	0.154	-	0.161	3.90	-	4.10
P	0.311	-	0.319	7.90	-	8.10
P1	0.075	-	0.083	1.90	-	2.10
W	0.626	-	0.642	15.90	-	16.30

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