

preliminary

Schottky Diode Gen ²

$$\begin{aligned} V_{RRM} &= 45V \\ I_{FAV} &= 15A \\ V_F &= 0.63V \end{aligned}$$

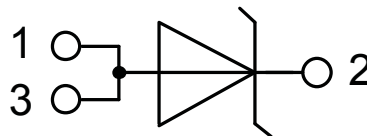
High Performance Schottky Diode
Low Loss and Soft Recovery
Single Diode

Part number

DSA15IM45IB



Backside: cathode



Features / Advantages:

- Very low V_f
- Extremely low switching losses
- Low I_{rm} values
- Improved thermal behaviour
- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching

Applications:

- Rectifiers in switch mode power supplies (SMPS)
- Free wheeling diode in low voltage converters

Package: TO-262 (I2Pak)

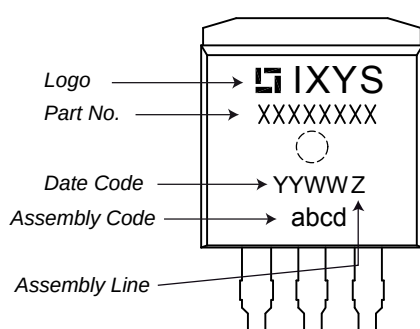
- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0

Schottky				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				45	V
V_{RRM}	max. repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				45	V
I_R	reverse current, drain current	$V_R = 45\text{ V}$	$T_{VJ} = 25^{\circ}\text{C}$			250	μA
		$V_R = 45\text{ V}$	$T_{VJ} = 125^{\circ}\text{C}$			2.5	mA
V_F	forward voltage drop	$I_F = 15\text{ A}$	$T_{VJ} = 25^{\circ}\text{C}$			0.75	V
		$I_F = 30\text{ A}$				0.91	V
		$I_F = 15\text{ A}$	$T_{VJ} = 125^{\circ}\text{C}$			0.63	V
		$I_F = 30\text{ A}$				0.79	V
I_{FAV}	average forward current	$T_C = 155^{\circ}\text{C}$ rectangular $d = 0.5$	$T_{VJ} = 175^{\circ}\text{C}$			15	A
V_{F0}	threshold voltage	} for power loss calculation only				0.42	V
r_F	slope resistance					9.9	m Ω
R_{thJC}	thermal resistance junction to case					1.75	K/W
R_{thCH}	thermal resistance case to heatsink				0.50		K/W
P_{tot}	total power dissipation	$T_C = 25^{\circ}\text{C}$				85	W
I_{FSM}	max. forward surge current	$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}; V_R = 0\text{ V}$	$T_{VJ} = 45^{\circ}\text{C}$			340	A
C_J	junction capacitance	$V_R = 5\text{ V}$ $f = 1\text{ MHz}$	$T_{VJ} = 25^{\circ}\text{C}$		497		pF

preliminary

Package TO-262 (I2Pak)			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal			35	A
T_{VJ}	virtual junction temperature		-55		175	°C
T_{op}	operation temperature		-55		150	°C
T_{stg}	storage temperature		-55		150	°C
Weight				1.5		g
F_c	mounting force with clip		20		60	N

Product Marking



Part number

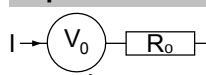
D = Diode
 S = Schottky Diode
 A = low VF
 15 = Current Rating [A]
 IM = Single Diode
 45 = Reverse Voltage [V]
 IB = TO-262 (I2Pak) (3)

Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA15IM45IB	DSA15IM45IB	Tube	50	502475

Equivalent Circuits for Simulation

* on die level

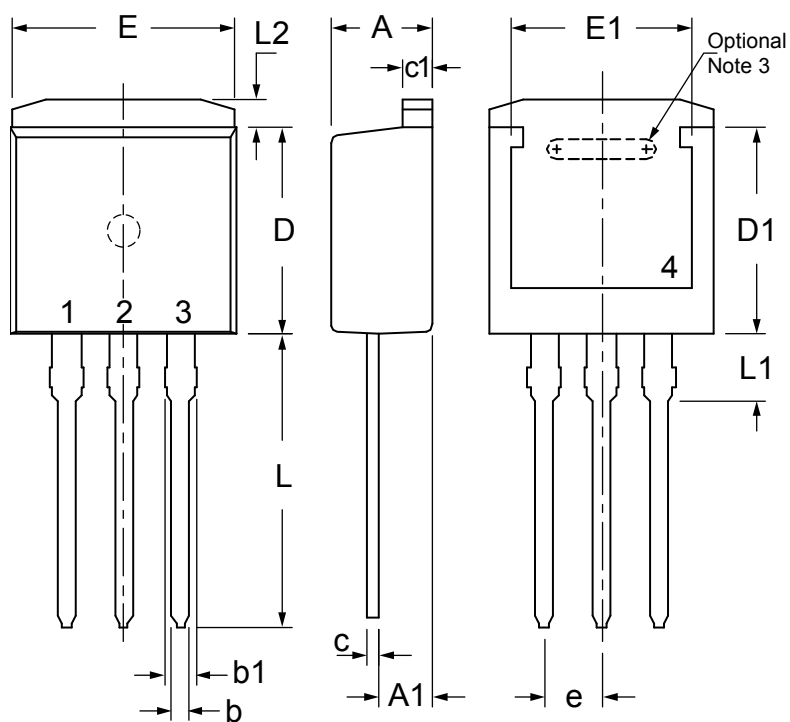
$T_{VJ} = 175^{\circ}\text{C}$



Schottky

$V_{0\max}$	threshold voltage	0.42	V
$R_{0\max}$	slope resistance *	6.7	mΩ

Outlines TO-262 (I2Pak)



NOTE:

1. This drawing will meet all dimensions requirement of JEDEC outline TO-262 AA.
2. All metal surface are matte pure tin plated except trimmed area.
3. Inter locking slot depends upon frame type.

SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.160	.190	4.06	4.83
A1	.080	.110	2.03	2.79
b	.025	.035	0.64	0.88
b1	.025	.039	1.14	1.40
c	.018	.025	0.46	0.64
c1	.045	.055	1.14	1.40
D	.340	.380	8.64	9.65
D1	.270	.290	6.86	7.37
E	.380	.405	9.65	10.29
E1	.245	.320	6.22	8.13
e	.100 BSC		2.54 BSC	
L	.500	.560	12.70	14.22
L1	.100	.125	2.54	3.18
L2	.040	.055	1.02	1.40

