

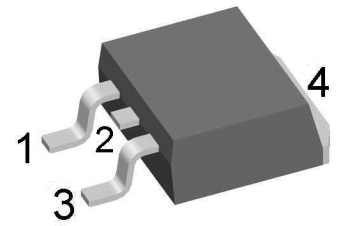
# Schottky Diode

$V_{RRM}$	=	100 V
$I_{FAV}$	=	10 A
$V_F$	=	0.66 V

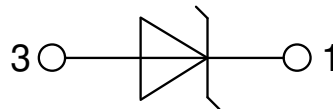
High Performance Schottky Diode  
 Low Loss and Soft Recovery  
 Single Diode

Part number

**DSS10-01AS**



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-263 (D2Pak)

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

## Disclaimer Notice

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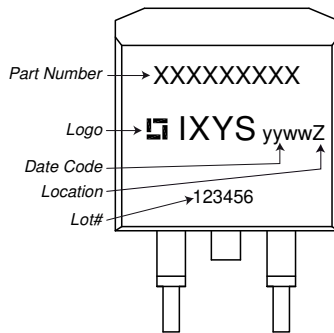


Schottky				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
$V_{RSM}$	max. non-repetitive reverse blocking voltage					100	V
$V_{RRM}$	max. repetitive reverse blocking voltage					100	V
$I_R$	reverse current, drain current	$V_R = 100\text{ V}$	$T_{VJ} = 25^\circ\text{C}$			300	$\mu\text{A}$
		$V_R = 100\text{ V}$	$T_{VJ} = 125^\circ\text{C}$			2.5	mA
$V_F$	forward voltage drop	$I_F = 10\text{ A}$	$T_{VJ} = 25^\circ\text{C}$			0.84	V
		$I_F = 20\text{ A}$				0.97	V
		$I_F = 10\text{ A}$	$T_{VJ} = 125^\circ\text{C}$			0.66	V
		$I_F = 20\text{ A}$				0.80	V
$I_{FAV}$	average forward current	$T_C = 160^\circ\text{C}$ rectangular $d = 0.5$	$T_{VJ} = 175^\circ\text{C}$			10	A
$V_{FO}$	threshold voltage	} for power loss calculation only				0.44	V
$r_F$	slope resistance					13.2	m $\Omega$
$R_{thJC}$	thermal resistance junction to case					1.7	K/W
$R_{thCH}$	thermal resistance case to heatsink				0.25		K/W
$P_{tot}$	total power dissipation			$T_C = 25^\circ\text{C}$		90	W
$I_{FSM}$	max. forward surge current	$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}; V_R = 0\text{ V}$	$T_{VJ} = 45^\circ\text{C}$			120	A
$C_J$	junction capacitance	$V_R = 12\text{ V}$ $f = 1\text{ MHz}$	$T_{VJ} = 25^\circ\text{C}$		146		pF
$E_{AS}$	non-repetitive avalanche energy	$I_{AS} = 5\text{ A}$ $L = 100\ \mu\text{H}$	$T_{VJ} = 25^\circ\text{C}$			1.25	mJ
$I_{AR}$	repetitive avalanche current	$V_A = 1.5 \cdot V_R$ typ. $f = 10\text{ kHz}$				0.5	A



Package TO-263 (D2Pak)			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
<b>Weight</b>				1.5		g
$F_C$	mounting force with clip		20		60	N

**Product Marking**



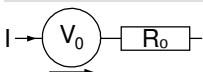
Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSS10-01AS-TRL	DSS10-01AS-TRL	Tape & Reel	800	525205
Alternative	DSS10-01AS-TUB	DSS10-01AS	Tube	50	477222

Similar Part	Package	Voltage class
DSS10-01A	TO-220AC (2)	100
DSA10I100PM	TO-220ACFP (2)	100
DSS20-01AC	ISOPLUS220AC (2)	100

**Equivalent Circuits for Simulation**

\* on die level

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



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$V_{0\ max}$	threshold voltage	0.44	V
$R_{0\ max}$	slope resistance *	10	mΩ

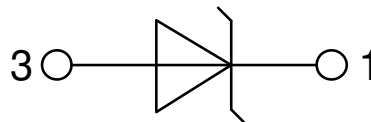


**Outlines TO-263 (D2Pak)**



Dim.	Millimeter		Inches	
	min	max	min	max
A	4.06	4.83	0.160	0.190
A1	typ. 0.10		typ. 0.004	
A2	2.41		0.095	
b	0.51	0.99	0.020	0.039
b2	1.14	1.40	0.045	0.055
c	0.40	0.74	0.016	0.029
c2	1.14	1.40	0.045	0.055
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
D2	2.5		0.098	
E	9.65	10.41	0.380	0.410
E1	6.22	8.50	0.245	0.335
e	2,54 BSC		0,100 BSC	
e1	4.28		0.169	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L1	1.02	1.68	0.040	0.066
W	typ. 0.02	0.040	typ. 0.0008	0.002

*All dimensions conform with and/or within JEDEC standard.*



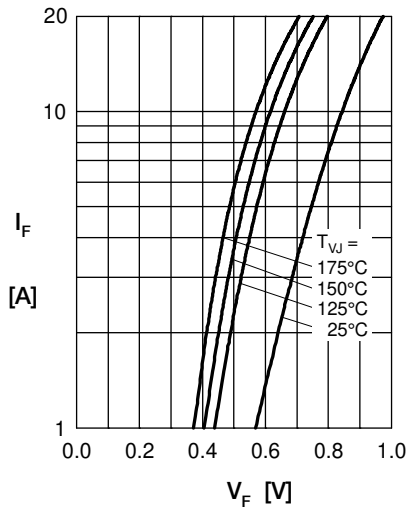
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Fig. 1 Max. forward voltage drop characteristics

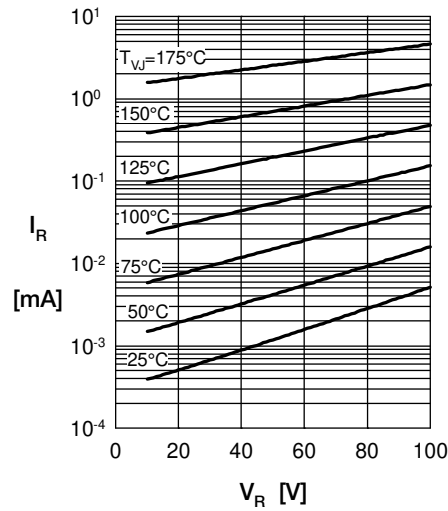
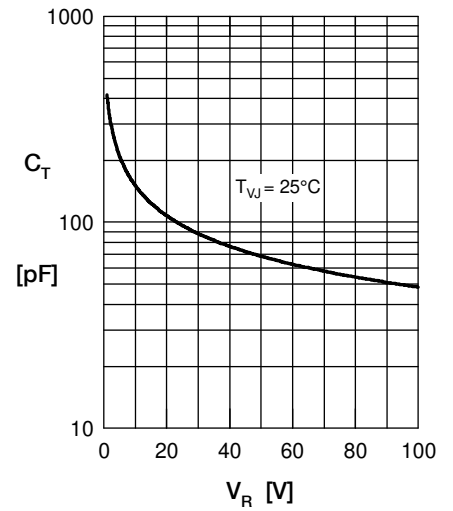
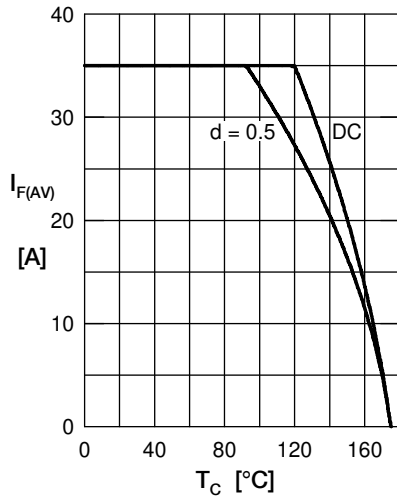
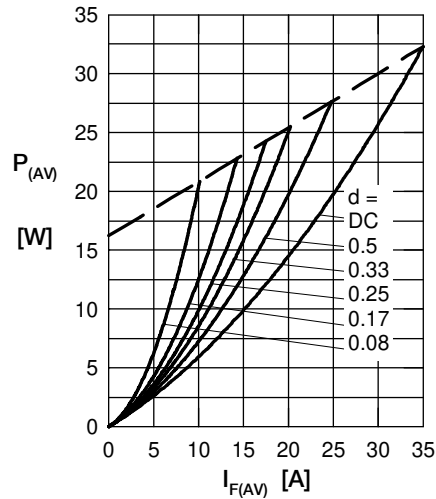

 Fig. 2 Typ. reverse current  $I_R$  vs. reverse voltage  $V_R$ 

 Fig. 3 Typ. junction capacitance  $C_T$  vs. reverse voltage  $V_R$ 

 Fig. 4 Average forward current  $I_{F(AV)}$  vs. case temp.  $T_C$ 


Fig. 5 Forward power loss characteristics

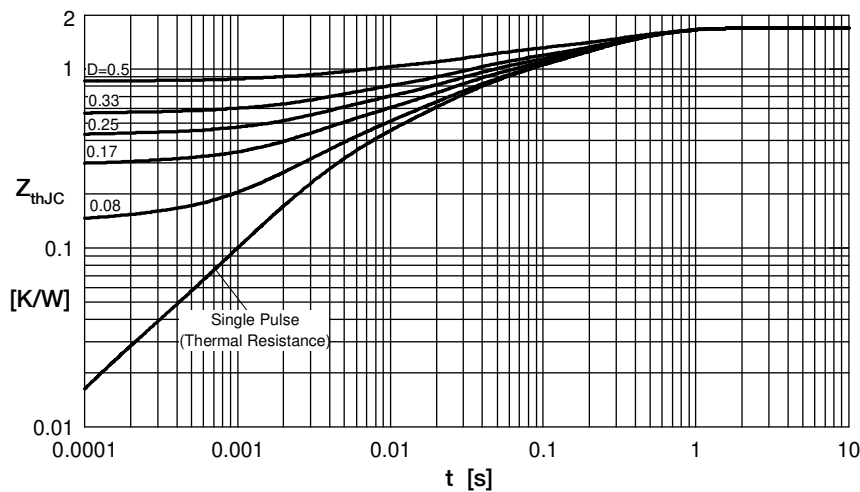


Fig. 6 Transient thermal impedance junction to case at various duty cycles

Note: All curves are per diode