

TSD330N15

150V N-Channel MOSFET

General Description

The 330N15 uses advanced SGT technology to provide excellent RDS(ON). This device is ideal for boost converters and synchronous rectifiers for consumer, telecom, industrial power supplies and LED backlighting.

Features

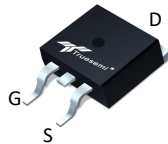
50A,150V,Max.RDS(on)=33mΩ
@ VGS =10V

Applications

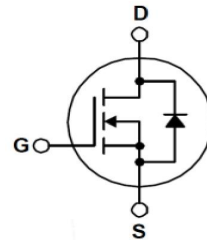
- High Frequency Switching and Synchronous Rectification

Features

- Low On-Resistance
- 100% avalanche tested
- RoHS Compliant



TO-252



Absolute Maximum Ratings T_C=25°C unless otherwise specified

Symbol	Parameter		Value	Units
V _{DSS}	Drain-Source Voltage		150	V
V _{GS}	Gate-Source Voltage		± 20	V
I _D	Drain Current	T _C = 25°C	50	A
		T _C = 100°C	35	A
I _{DM}	Pulsed Drain Current		200	A
E _{AS}	Single Pulsed Avalanche Energy ¹		162	mJ
P _D	Power Dissipation (T _C = 25°C)		100	W
T _J , T _{STG}	Operating and Storage Temperature Range		-55 to +150	°C

Thermal Resistance Characteristics

Symbol	Parameter	Rating	Units
R _{θJC}	Thermal Resistance,Junction-to-Case Max.	1.25	°C/W
R _{θJA}	Thermal Resistance,Junction-to-Ambient Max.	42	°C/W

* Surface mounted FR-4 board by JEDEC (jesd51-7). Continuous current at TC=25°C is silicon limited

Electrical Characteristics $T_c=25\text{ }^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
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On Characteristics

$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	2.0	--	4.0	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS} = 10\text{ V}, I_D = 20\text{ A}$	--	29	33	m Ω
g_{fs}	Forward transfer conductance	$V_{DS} = 10\text{ V}, I_D = 10\text{ A}$	--	11	--	S

Off Characteristics

BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0\text{ V}, I_D=250\mu\text{A}$	150	--	--	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=150\text{ V}, V_{GS}=0\text{ V}$	--	--	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20\text{ V}, V_{DS}=0\text{ V}$	--	--	± 100	nA

Dynamic Characteristics

C_{iss}	Input Capacitance	$V_{DS} = 25\text{ V}, V_{GS} = 0\text{ V},$ $f = 1\text{ MHz}$	--	750	--	pF
C_{oss}	Output Capacitance		--	500	--	pF
C_{rss}	Reverse Transfer Capacitance		--	35	--	pF

Switching Characteristics

$t_{d(on)}$	Turn-On Time	$V_{DS}=75\text{ V}$ $V_{GS}=10\text{ V}$ $R_G=1.6\text{ }\Omega$ $I_D=16\text{ A}$	--	9	--	ns
t_r	Turn-On Rise Time		--	6	--	ns
$t_{d(off)}$	Turn-Off Delay Time		--	12	--	ns
t_f	Turn-Off Fall Time		--	4	--	ns
Q_g	Total Gate Charge	$I_D = 16\text{ A},$ $V_{DS}=75\text{ V}$ $V_{GS} = 0\text{ to }10\text{ V}$	--	12	--	nC
Q_{gs}	Gate-Source Charge		--	5	--	nC
Q_{gd}	Gate-Drain Charge		--	2	--	nC

Source-Drain Diode Maximum Ratings and Characteristics

I_S	Diode continuous forward current	$V_G=V_D=0\text{ V},$ Force Current	--	--	50	A
I_{SM}	Diode pulse current		--	--	200	
V_{SD}	Diode Forward Voltage	$V_{GS}=0\text{ V}, I_S=20\text{ A}, T_j=25\text{ }^{\circ}\text{C}$	--	0.89	1.2	V

NOTES:

The EAS data shows Max. rating .The test condition is $V_{DD}=50\text{ V}, V_{GS}=10\text{ V}, L=1\text{ mH}, I_{AS}=18\text{ A}$.

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Typical Characteristics

