Truesemi®

TSK044N10B

100V N-Channel MOSFET

General Description

The 044N10B uses advanced SGT technology to provide excellent RDS(ON).This device is ideal for high-frequency switching and synchronous rectification.

Features

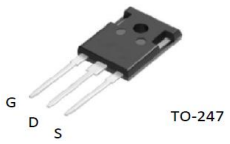
• 180A,100V,Max.RDS(on)=4.2mΩ @ VGS =10V

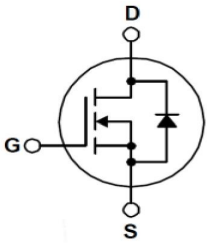
Applications

• Motor Contro
• Synchronous Rectification for power supply
• Ideal for boost convertersl

Features

• Low on-resistance
• Fast Switching
• 100% avalanche tested
• RoHS Compliant





Absolute Maximum Ratings

T_C=25℃ unless otherwise specified

Symbol	Parameter		Value	Units
V_{DSS}	Drain-Source Voltage		100	V
V_{GS}	Gate-Source Voltage		± 20	V
I_D	Drain Current	T_C = 25℃	180	A
		T_C = 100℃	126	A
I_{DM}	Pulsed Drain Current		720	A
E_{AS}	Single Pulsed Avalanche Energy[1]		1458	mJ
P_D	Power Dissipation (T_C = 25℃)		370	W
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +150	℃

Thermal Resistance Characteristics

Symbol	Parameter	Rating	Units
$R_{\theta JC}$	Thermal Resistance,Junction-to-Case	0.34	℃/W
$R_{\theta JA}$	Thermal Resistance,Junction-to-Ambient	62	℃/W

Electrical Characteristics T_C=25 ℃ unless otherwise specified

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250 uA	2.0	--	4.0	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS} = 10 V, I_D = 50 A	--	3.40	4.20	mΩ
g_{fs}	Forward transfer conductance	V_{DS} = 10V, I_D = 20A	--	38	--	S
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	100	--	--	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=80V , V_{GS}=0V	--	--	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=± 20V , V_{DS}=0V	--	--	±100	nA
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} = 25 V, V_{GS} = 0 V, f = 1 MHz	--	7200	--	pF
C_{oss}	Output Capacitance		--	2400	--	pF
C_{rss}	Reverse Transfer Capacitance		--	200	--	pF
Switching Characteristics						
$t_{d(on)}$	Turn-On Time	V_{DS} =50 V, V_{GS} =10V, I_D =60 A, R_G = 1.6 Ω	--	25	--	ns
t_r	Turn-On Rise Time		--	47	--	ns
$t_{d(off)}$	Turn-Off Delay Time		--	50	--	ns
t_f	Turn-Off Fall Time		--	15	--	ns
Q_g	Total Gate Charge	I_D = 20A, V_{DD}=50V, V_{GS} = 10V	--	74	--	nC
Q_{gs}	Gate-Source Charge		--	24	--	nC
Q_{gd}	Gate-Drain Charge		--	18	--	nC
Source-Drain Diode Maximum Ratings and Characteristics						
I_S	Continuous Source-Drain Diode Forward Current	VG=VD=0V , Force Current	--	--	180	A
I_{SM}	Pulsed Source-Drain Diode Forward Current		--	--	720	
V_{SD}	Source-Drain Diode Forward Voltage	I_S = 50A, V_{GS} = 0 V, T_J=25℃	--	0.85	1.3	V

NOTES:

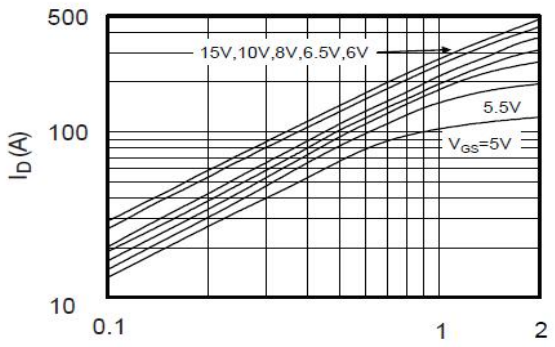
1.The EAS data shows Max. rating . The test condition is VDD=50V,VGS=10V , L=1mH , IAS=54A.

This product has been designed and qualified for the counsumer market.

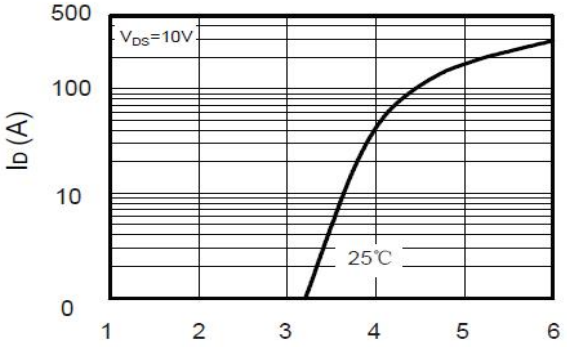
Truesemi assumes no liability for customers' product design or applications.

Truesemi reserver the right to improve product design ,functions and reliability wihtout notice.

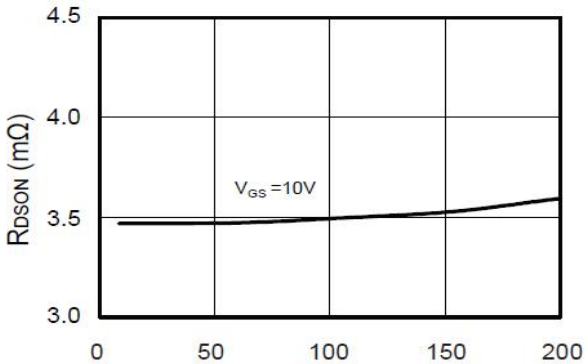
Typical Characteristics



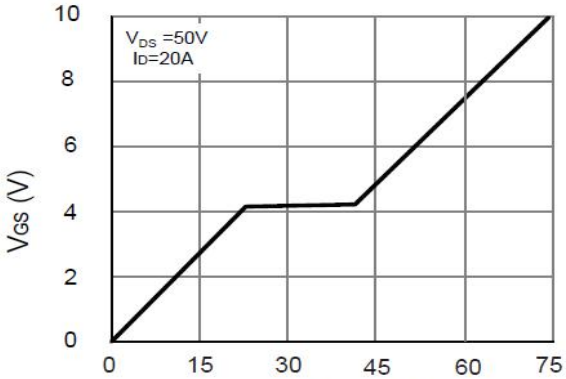
Output Characteristics



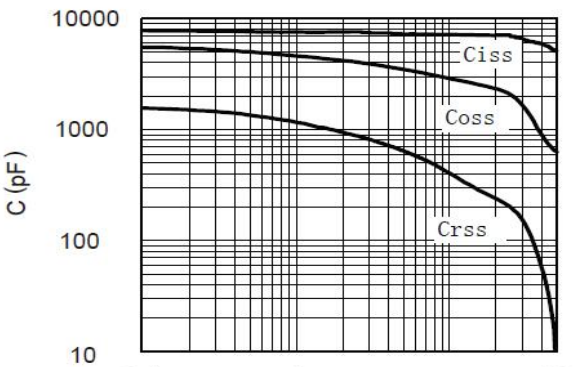
transfer characteristics



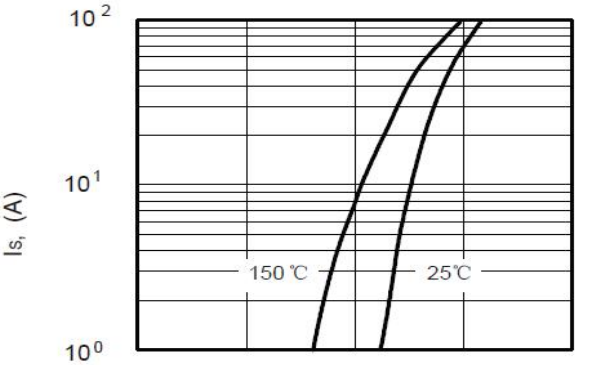
drain-source on-resistance



Gate charge vs gate-source voltage



Capacitance Characteristics



Body-Diode Characteristics