ST03N20

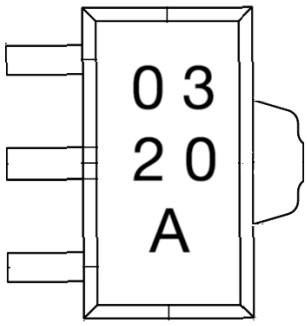
N Channel Enhancement Mode MOSFET

1.9A

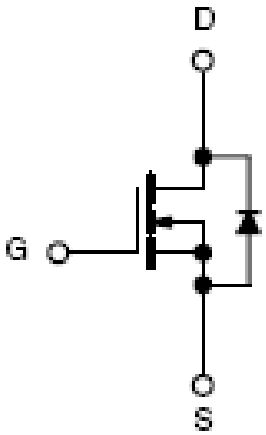
DESCRIPTION

ST03N20 is the N-Channel logic enhancement mode power field effect transistor which is produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application such as power management and other battery powered circuits where high-side switching.

PIN CONFIGURATION
SOT-89-3L



0320 : Product Code
A : Date Code



FEATURE

- 200V/2A, $R_{DS(ON)}$ = 850m @V_{GS} = 10V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-89 package design

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ABSOULTE MAXIMUM RATINGS (Ta = 25℃ Unless otherwise noted)

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		VDSS	200	V
Gate-Source Voltage		VGSS	±30	V
Continuous Drain Current (TJ=150℃)	TA=25℃ TA=100℃	ID	1.9 0.8	A
Pulsed Drain Current		IDM	9	A
Power Dissipation	TA=25℃	PD	1.78	W
Operation Junction Temperature		TJ	-55/150	℃
Storgae Temperature Range		TSTG	-55/150	℃
Thermal Resistance-Junction to Ambient		RθJA	75	℃/W

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ELECTRICAL CHARACTERISTICS (Ta = 25℃ Unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,ID=250uA	200			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},ID=250uA	3	4	5	V
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±30V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=160V,V_{GS}=0V			1	uA
Drain-source On-Resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=12A		750	850	mΩ
Forward Transconductance	gfs	V_{DS}=10V,I_D=2A		3.6		S
Diode Forward Voltage	V_{SD}	I_S=1A,V_{GS}=0V			1	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=160V,V_{GS}=10V I_D=1 A			9	nC
Gate-Source Charge	Q_{gs}				4	
Gate-Drain Charge	Q_{gd}				2	
Input Capacitance	C_{iss}	V_{DS} =25V,V_{GS}=0V f=1MHz		260	500	pF
Output Capacitance	C_{oss}			160	300	
Reverse TransferCapacitance	C_{rss}			55	110	
Turn-On Time	$t_{d(on)}$	V_{DS}=100 V_{GEN}=10V, I_D=1A R_G=25Ω		10	20	nS
	tr			35	70	
Turn-Off Time	$t_{d(off)}$			10	20	
	tf			28	56	

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TYPICAL CHATRCTERISTICS (Ta = 25℃ Unless otherwise noted)

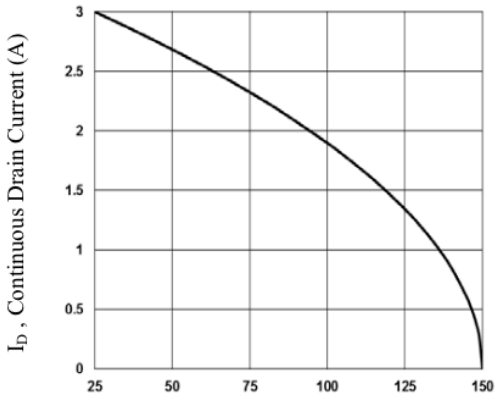

Fig.1 Continuous Drain Current vs. T_C

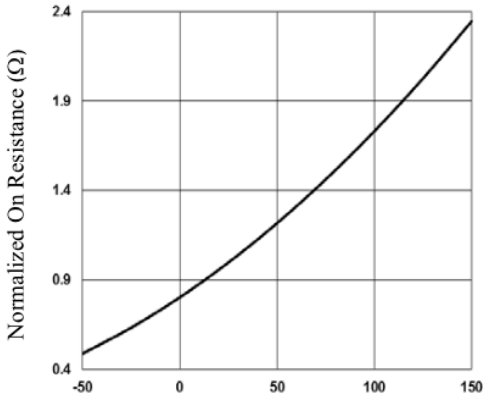

Fig.2 Normalized RDSON vs. T_J

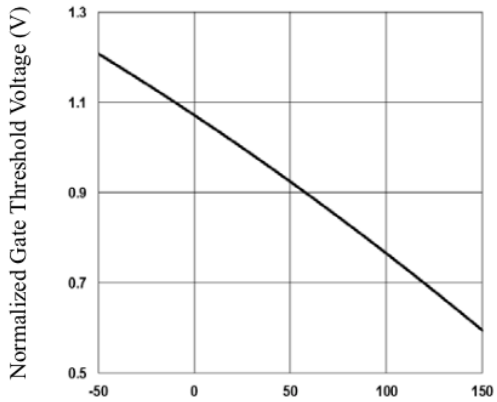

Fig.3 Normalized V_{th} vs. T_J

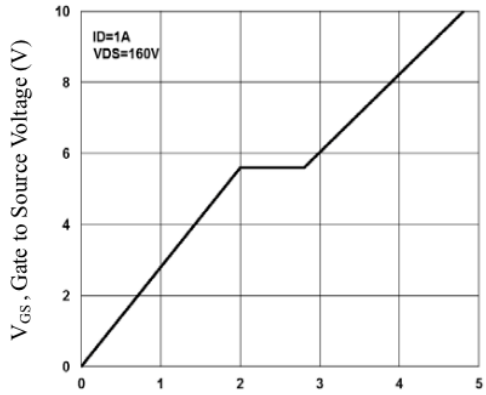

Fig.4 Gate Charge Waveform

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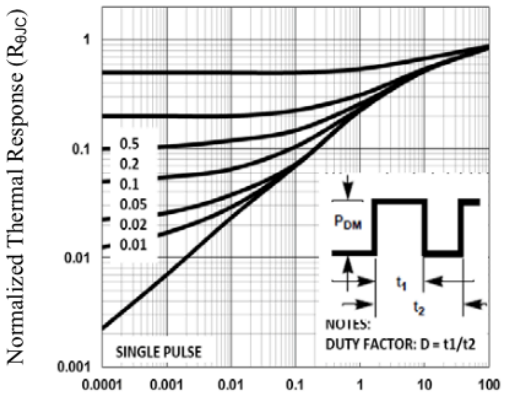

Fig.5 Normalized Transient Impedance

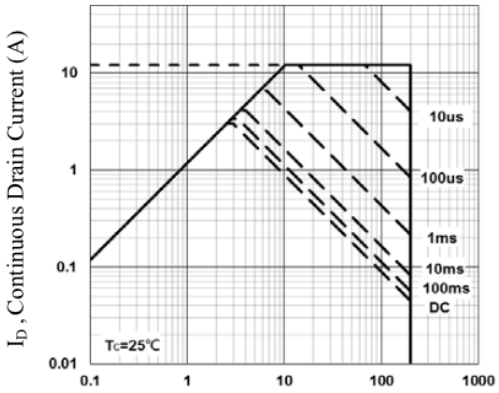

Fig.6 Maximum Safe Operation Area

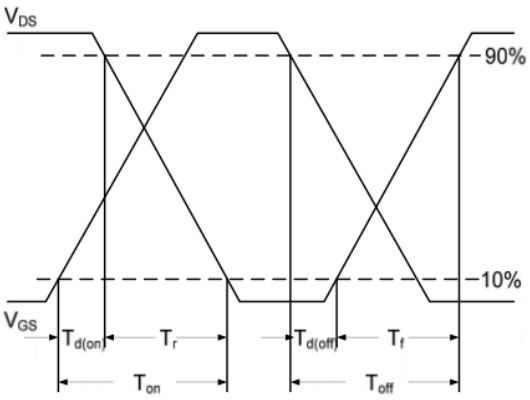

Fig.7 Switching Time Waveform

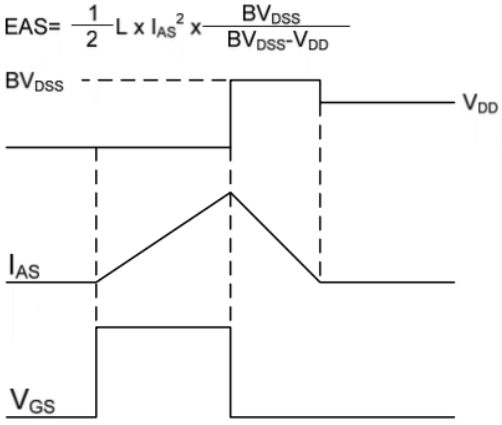

Fig.8 EAS Waveform

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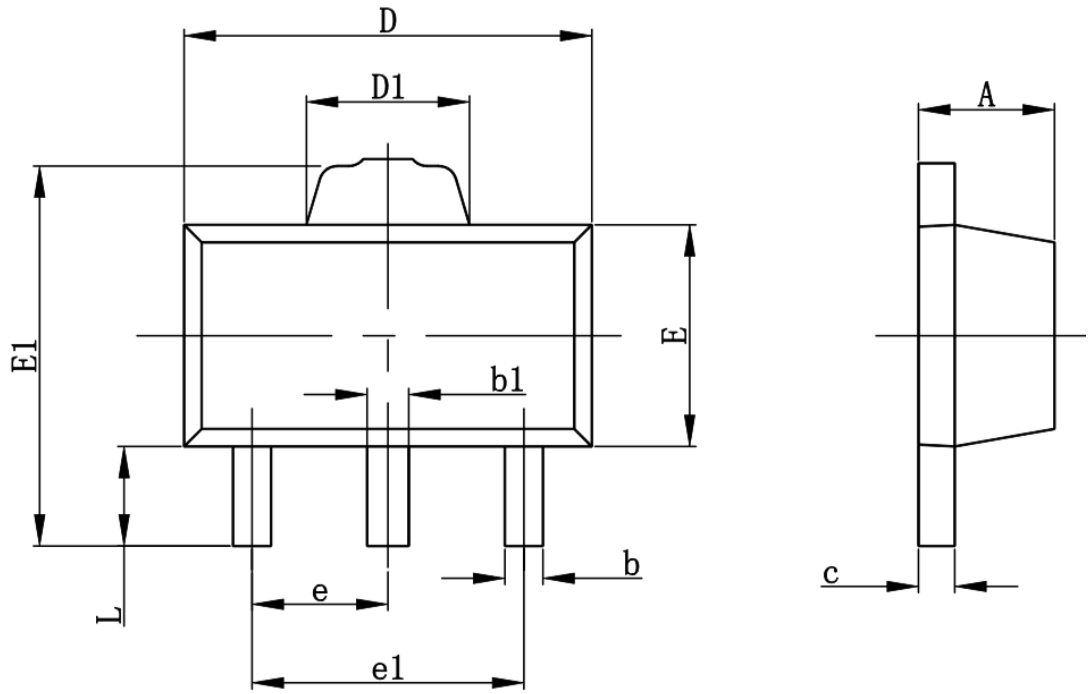
PACKAGE OUTLINE SOT-89-3L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.360	0.560	0.014	0.022
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.400	1.800	0.055	0.071
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500TYP		0.060TYP	
e1	2.900	3.100	0.114	0.122
L	0.900	1.100	0.035	0.043

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