STN488DN

N Channel Enhancement Mode MOSFET

100A

DESCRIPTION

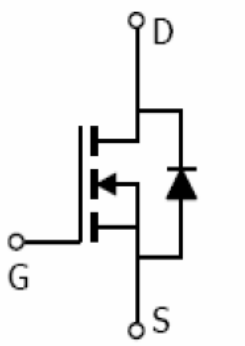
STN488DN uses Trench MOSFET technology that is uniquely optimized to provide the most efficient nigh frequency switching performance. It has been optimized for low gate charge, low $R_{DS(ON)}$ and fast switching speed.

PIN CONFIGURATION
POWER PACK 5x6

Y : Year Code
A : Date Code
B : Package Code
C : Process Code

FEATURE

- 40V/25A, $R_{DS(ON)}$ = 2.2mΩ @V_{GS} = 10V
- 40V/12A, $R_{DS(ON)}$ = 2.6mΩ @V_{GS} = 4.5V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- PPAK5x6 package design



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

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		VDSS	40	V
Gate-Source Voltage		VGSS	±20	V
Continuous Drain Current (TJ=150℃)	TA=25℃ TA=100℃	ID	100 63	A
Pulsed Drain Current		IDM	400	A
Continuous Source Current (Diode Conduction)		IS	100	A
Power Dissipation	TA=25℃	PD	135	W
Operation Junction Temperature		TJ	150	℃
Storage Temperature Range		TSTG	-55/150	℃
Thermal Resistance-Junction to Ambient		RθJA	62	℃/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	40			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},ID=250uA	1.0		2.5	V
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V,V_{GS}=0V			1	uA
		V_{DS}=32V,V_{GS}=0V T_J=125℃			10	
Drain-source On-Resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=25A V_{GS}=4.5V,I_D=12A		2.2 2.6	2.8 3.5	mΩ
Forward Transconductance	gfs	V_{DS}=10V,I_D=2A		16		S
Diode Forward Voltage	V_{SD}	I_S=1.0A,V_{GS}=0V			1.0	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=20V,V_{GS}=4.5V I_D≡10A		44.4	80	nC
Gate-Source Charge	Q_{gs}			9.6	18	
Gate-Drain Charge	Q_{gd}			16	30	
Input Capacitance	C_{iss}	V_{DS} =25V,V_{GS}=0V F=1MHz		4940	7800	pF
Output Capacitance	C_{oss}			420	800	
Reverse TransferCapacitance	C_{rss}			170	330	
Turn-On Time	$t_{d(on)}$	V_{DS}=20V,I_D=1A V_{GS}=10V, R_G=6Ω		28	50	nS
	tr			3.2	6.5	
Turn-Off Time	$t_{d(off)}$			105	150	
	tf			40	28	

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TYPICAL CHARACTERICTICS

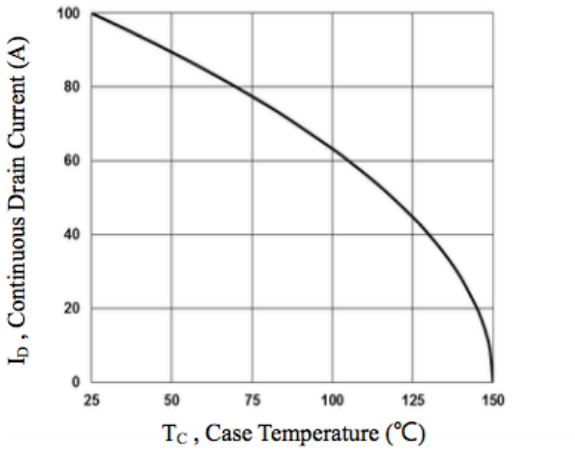

Fig.1 Continuous Drain Current vs. T_C

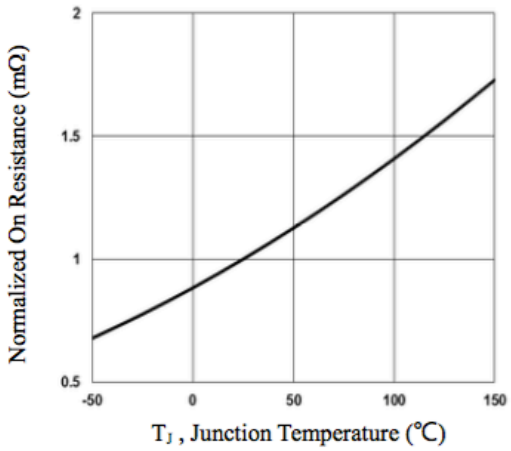

Fig.2 Normalized RDSON vs. T_J

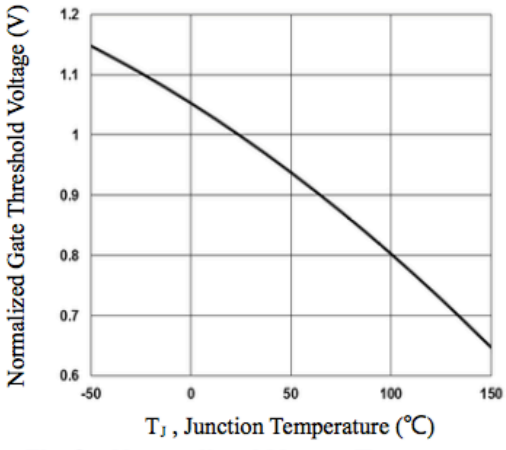

Fig.3 Normalized V_{th} vs. T_J

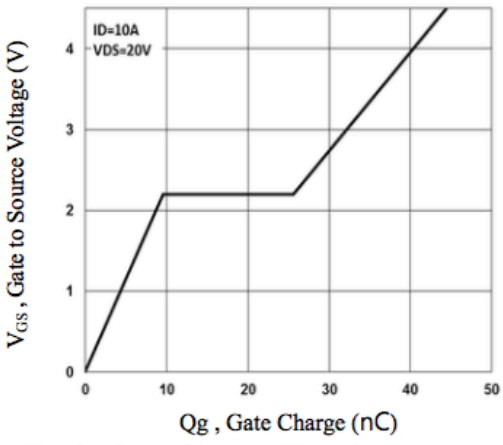

Fig.4 Gate Charge Waveform

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TYPICAL CHARACTERICTICS

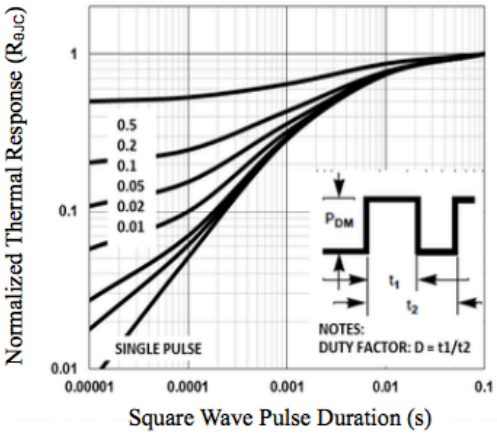

Fig.5 Normalized Transient Impedance

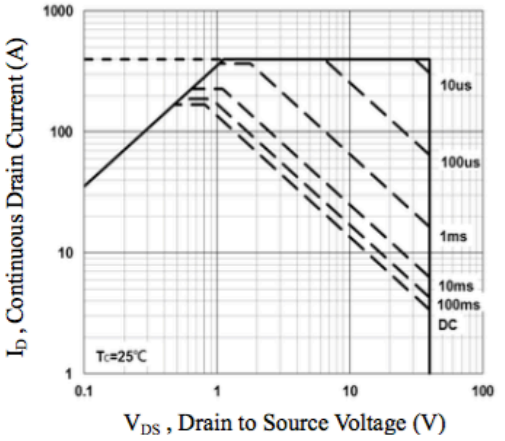

Fig.6 Maximum Safe Operation Area

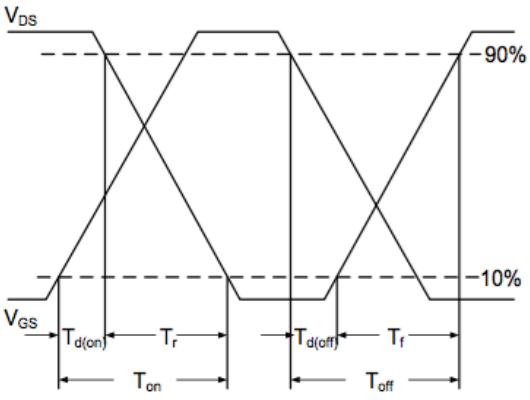

Fig.7 Switching Time Waveform

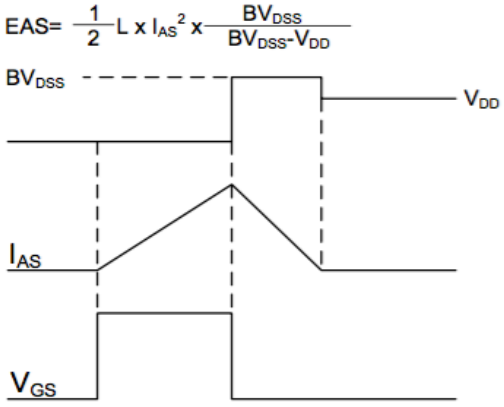

Fig.8 EAS Waveform

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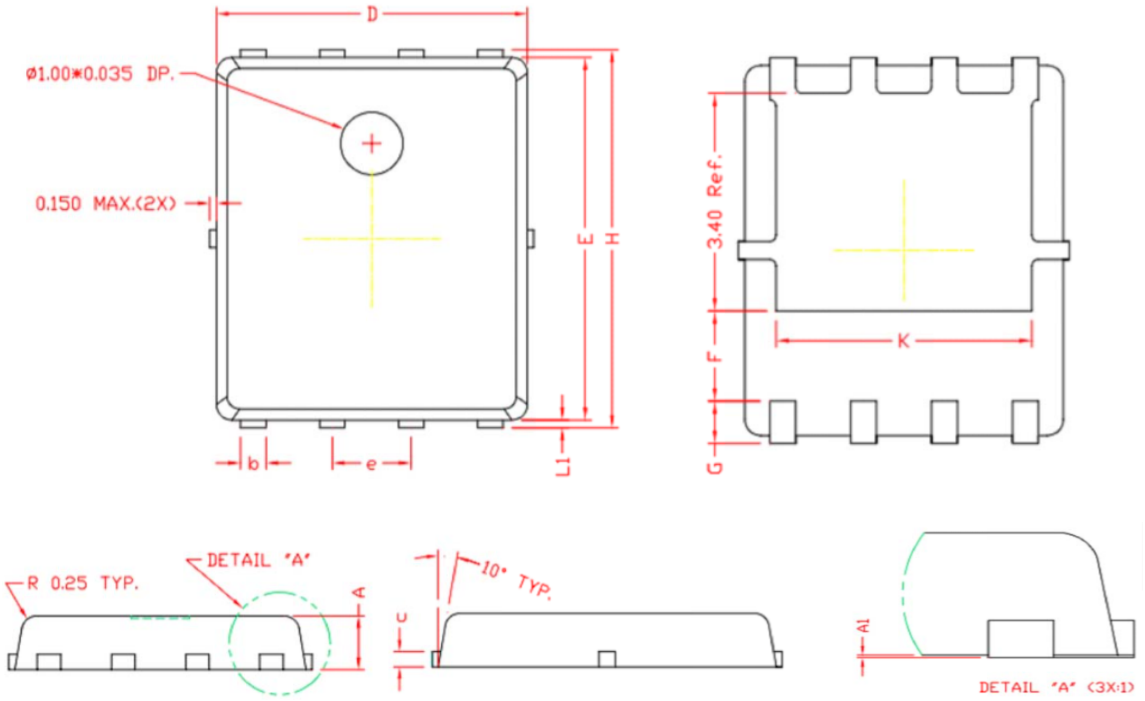
POWER PACKAGE 5x6 OUTLINE



(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	0.80	0.90	1.00
A1	0.00	0.03	0.05
b	0.35	0.42	0.49
c		0.254 REF.	
D	4.90	5.00	5.10
F		1.40 REF.	
E	5.70	5.80	5.90
e		1.27 BSC.	
H	5.95	6.08	6.20
L1	0.10	0.14	0.18
G		0.60 REF.	
K		4.00 REF.	

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