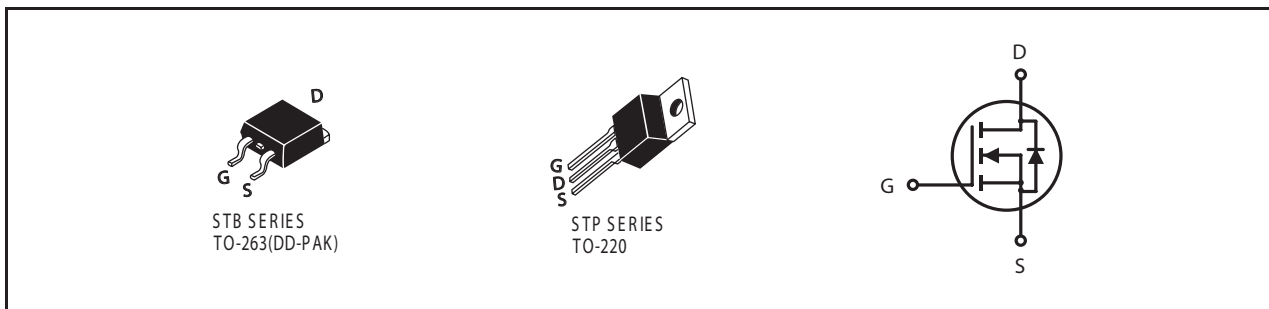


**N-Channel Logic Level Enhancement Mode Field Effect Transistor****PRODUCT SUMMARY**

VDSS	ID	RDS(ON) (mΩ) Typ
100V	75A	7.0 @ VGS=10V

FEATURES

- Super high dense cell design for extremely low RDS(ON).
- High power and current handling capability.
- TO-220 & TO-263 package.

**ABSOLUTE MAXIMUM RATINGS (T_C=25°C unless otherwise noted)**

Symbol	Parameter	Limit	Units
V _{DS}	Drain-Source Voltage	100	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Drain Current-Continuous ^c	T _C =25°C	75
		T _C =70°C	63
I _{DM}	-Pulsed ^{a,c}	390	A
E _{AS}	Avalanche Energy ^d	576	mJ
P _D	Maximum Power Dissipation	T _C =25°C	75
		T _C =70°C	52.5
T _J , T _{STG}	Operating Junction and Storage Temperature Range	-55 to 175	°C

THERMAL CHARACTERISTICS

R _{θJC}	Thermal Resistance, Junction-to-Case	2	°C/W
R _{θJA}	Thermal Resistance, Junction-to-Ambient	62.5	°C/W

STB4410

STP4410

Ver 1.0

ELECTRICAL CHARACTERISTICS (T_C=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	100			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =80V , V _{GS} =0V			1	uA
I _{GSS}	Gate-Body leakage current	V _{GS} = ±20V , V _{DS} =0V			±100	nA
ON CHARACTERISTICS						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	2	3	4	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =10V , I _D =37.5A		7.0	9.0	m ohm
g _{FS}	Forward Transconductance	V _{DS} =10V , I _D =37.5A		74		S
DYNAMIC CHARACTERISTICS ^b						
C _{ISS}	Input Capacitance	V _{DS} =25V, V _{GS} =0V f=1.0MHz		3715		pF
C _{OSS}	Output Capacitance			515		pF
C _{RSS}	Reverse Transfer Capacitance			315		pF
SWITCHING CHARACTERISTICS ^b						
t _{D(ON)}	Turn-On DelayTime	V _{DD} =50V I _D =1A V _{GS} =10V R _{GEN} = 6 ohm		116		ns
t _r	Rise Time			147		ns
t _{D(OFF)}	Turn-Off DelayTime			113		ns
t _f	Fall Time			37		ns
Q _g	Total Gate Charge	V _{DS} =50V, I _D =25A, V _{GS} =10V		58		nC
Q _{gs}	Gate-Source Charge	V _{DS} =50V, I _D =25A, V _{GS} =10V		9.5		nC
Q _{gd}	Gate-Drain Charge			26		nC
DRAIN-SOURCE DIODE CHARACTERISTICS						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =10A		0.77	1.3	V

Notes

- a. Pulse Test: Pulse Width < 10us, Duty Cycle < 1%.
- b. Guaranteed by design, not subject to production testing.
- c. Drain current limited by maximum junction temperature.
- d. Starting T_J=25°C, L=0.5mH, V_{DD} = 50V. (See Figure13)
- e. Mounted on FR4 Board of 1 inch² , 2oz.

Dec,26,2014

STB4410 STP4410

Ver 1.0

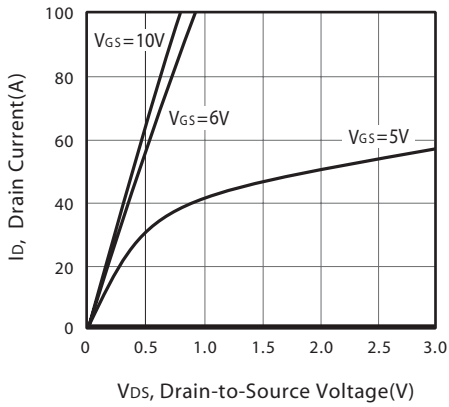


Figure 1. Output Characteristics

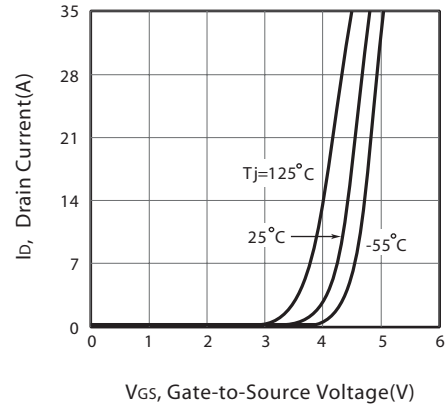


Figure 2. Transfer Characteristics

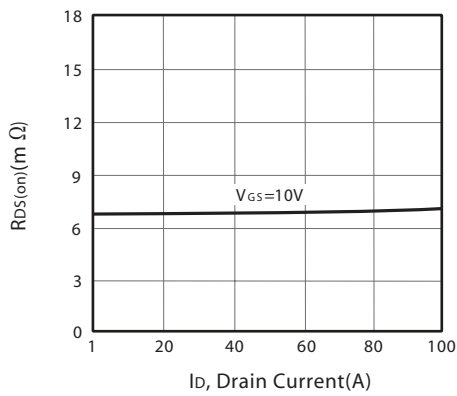


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

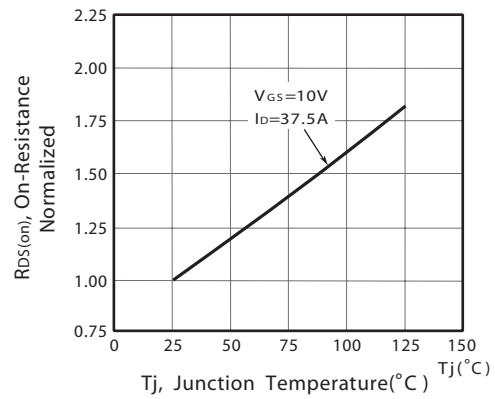


Figure 4. On-Resistance Variation with Drain Current and Temperature

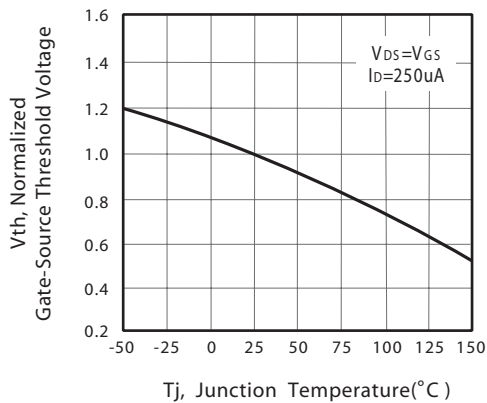


Figure 5. Gate Threshold Variation with Temperature

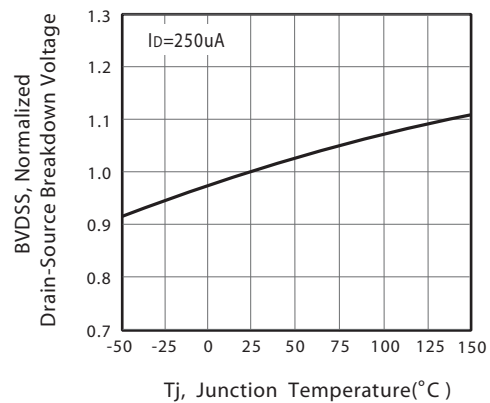


Figure 6. Breakdown Voltage Variation with Temperature

Dec,26,2014

STB4410 STP4410

Ver 1.0

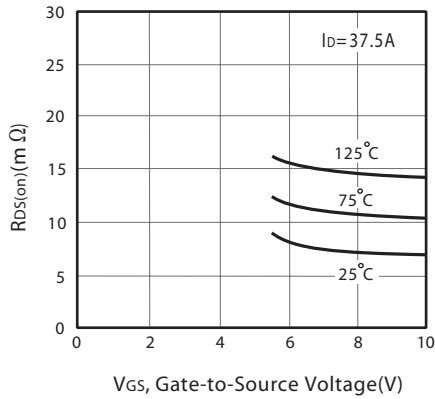


Figure 7. On-Resistance vs. Gate-Source Voltage

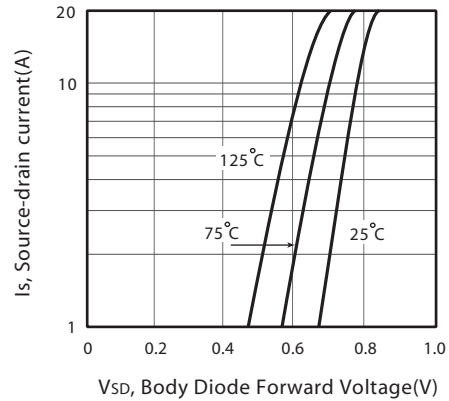


Figure 8. Body Diode Forward Voltage Variation with Source Current

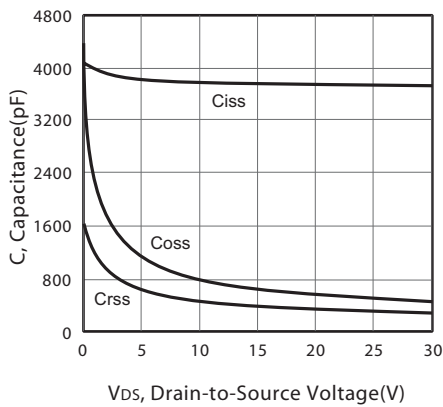


Figure 9. Capacitance

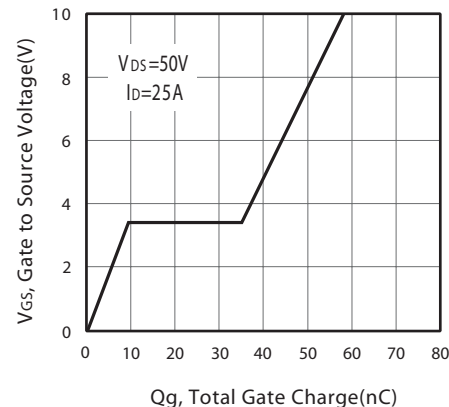


Figure 10. Gate Charge

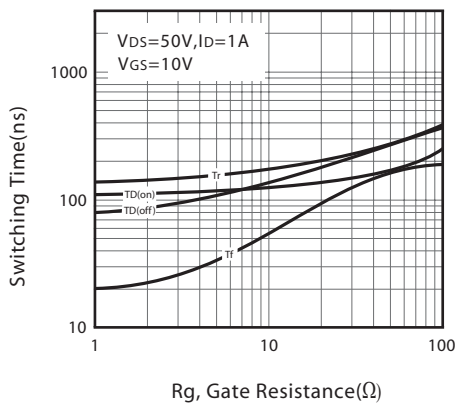


Figure 11. switching characteristics

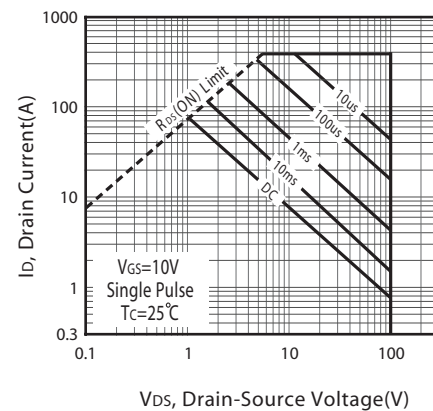
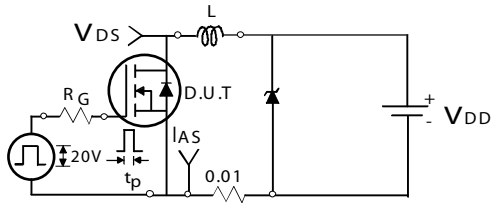


Figure 12. Maximum Safe Operating Area

Dec,26,2014

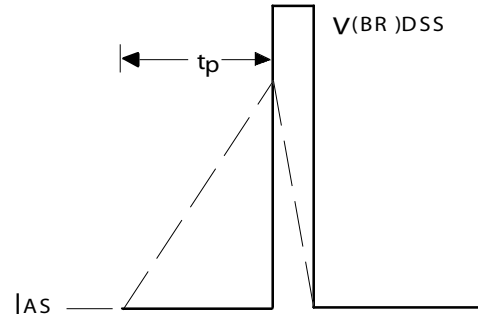
STB4410 STP4410

Ver 1.0



Unclamped Inductive Test Circuit

Figure 13a.



Unclamped Inductive Waveforms

Figure 13b.

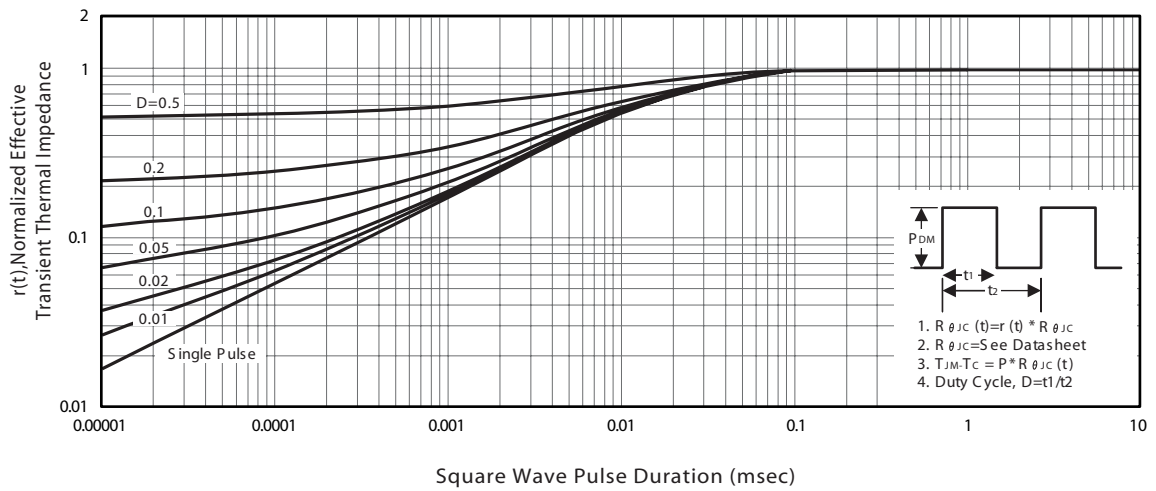


Figure 14. Normalized Thermal Transient Impedance Curve

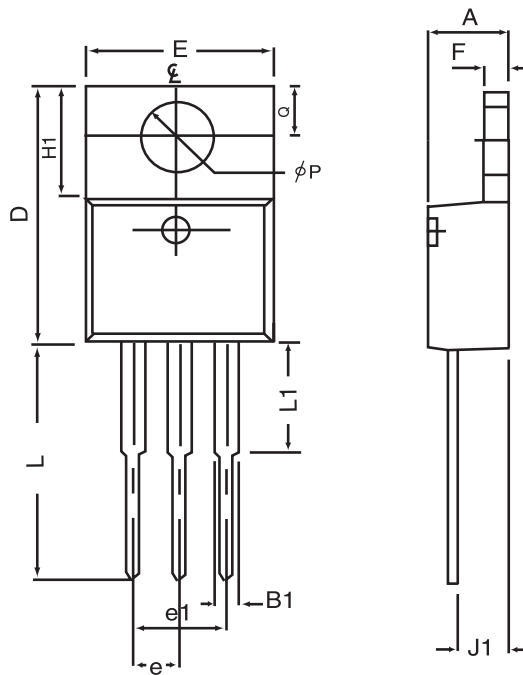
Dec,26,2014

STB4410 STP4410

Ver 1.0

PACKAGE OUTLINE DIMENSIONS

TO-220



SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.32	4.80	0.170	0.189
B1	1.27	1.65	0.050	0.630
D	14.6	16.00	0.575	0.610
E	9.70	10.41	0.382	0.410
e	2.34	2.74	0.092	0.108
e1	4.68	5.48	0.184	0.216
F	1.14	1.40	0.045	0.055
H1	5.97	6.73	0.235	0.265
J1	2.20	2.79	0.087	0.110
L	12.88	14.22	0.507	0.560
L1	3.00	6.35	0.120	0.250
φP	3.50	3.94	0.138	0.155
Q	2.54	3.05	0.100	0.120

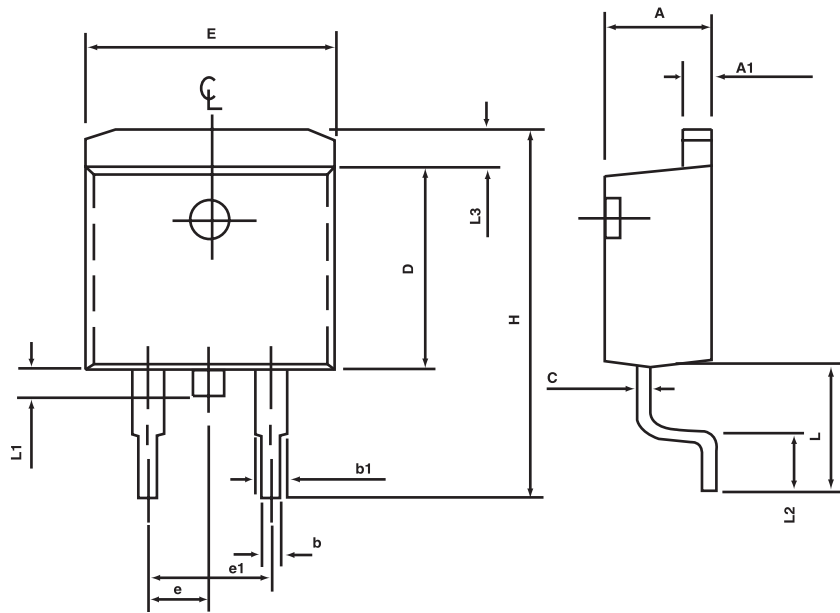
Dec,26,2014

STB4410 STP4410

Ver 1.0

PACKAGE OUTLINE DIMENSIONS

TO-263AB

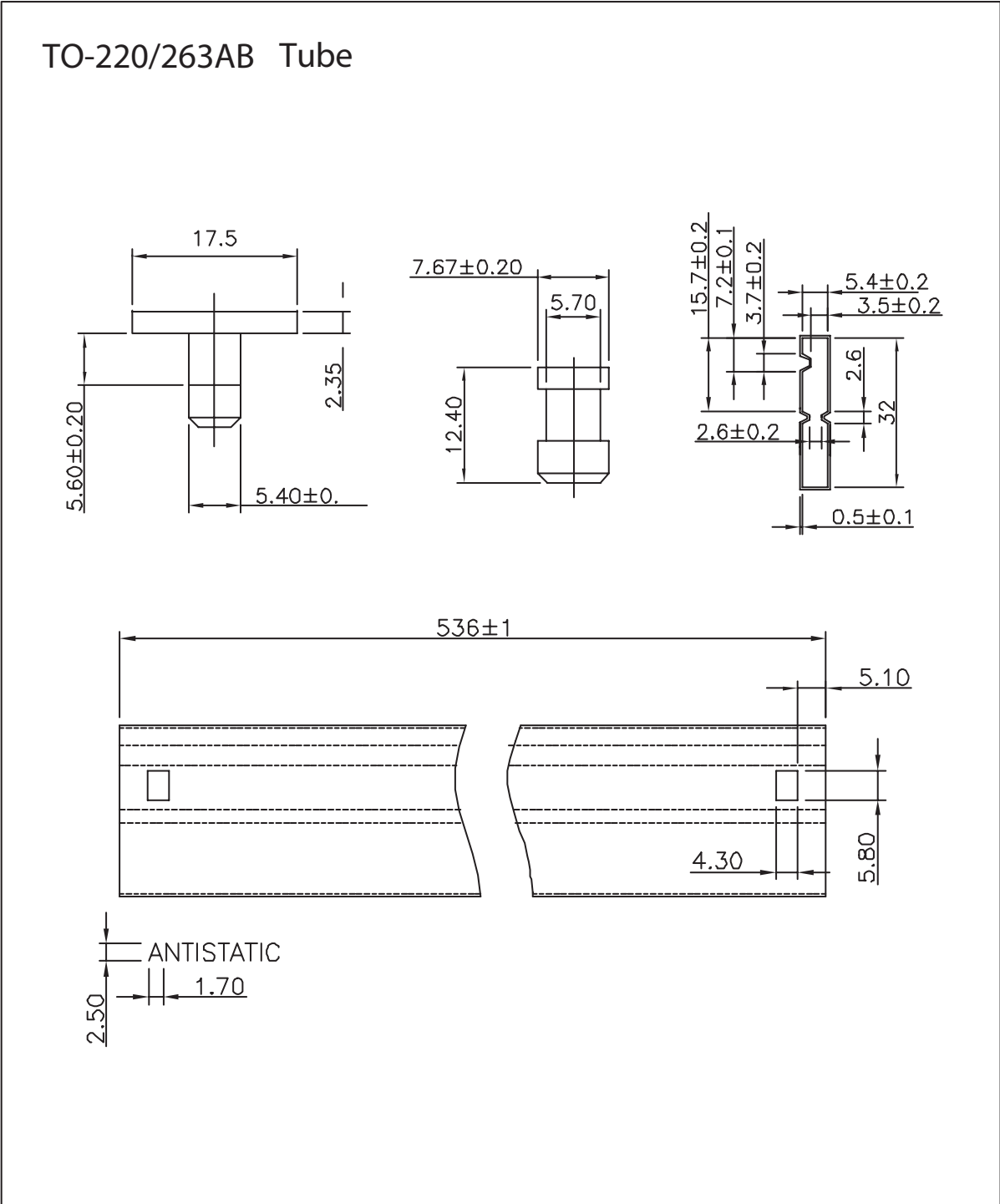


SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.30	4.70	0.169	0.185
A1	1.22	1.32	0.048	0.055
b	0.69	0.94	0.027	0.037
b1	1.22	1.40	0.048	0.055
C	0.36	0.56	0.014	0.022
D	8.64	9.652	0.340	0.380
E	9.70	10.54	0.382	0.415
e	2.29	2.79	0.090	0.110
e1	4.83	5.33	0.190	0.210
H	14.60	15.78	0.575	0.625
L	4.70	5.84	0.185	0.230
L1	1.20	1.778	0.047	0.070
L2	2.24	2.84	0.088	0.111
L3	1.40 MAX		0.055 MAX	

Dec,26,2014

STB4410 STP4410

Ver 1.0

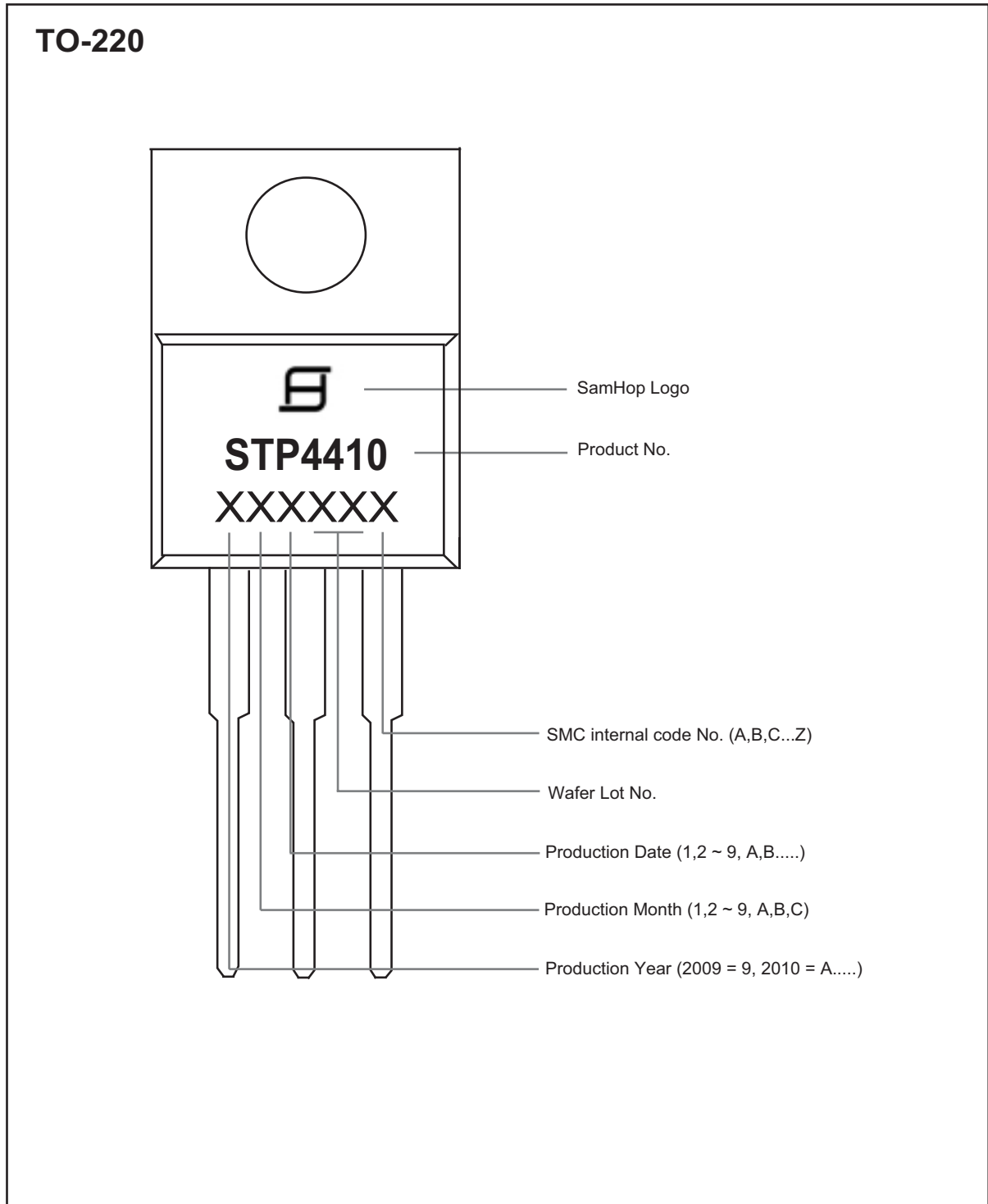


Dec,26,2014

STB4410 STP4410

Ver 1.0

TOP MARKING DEFINITION



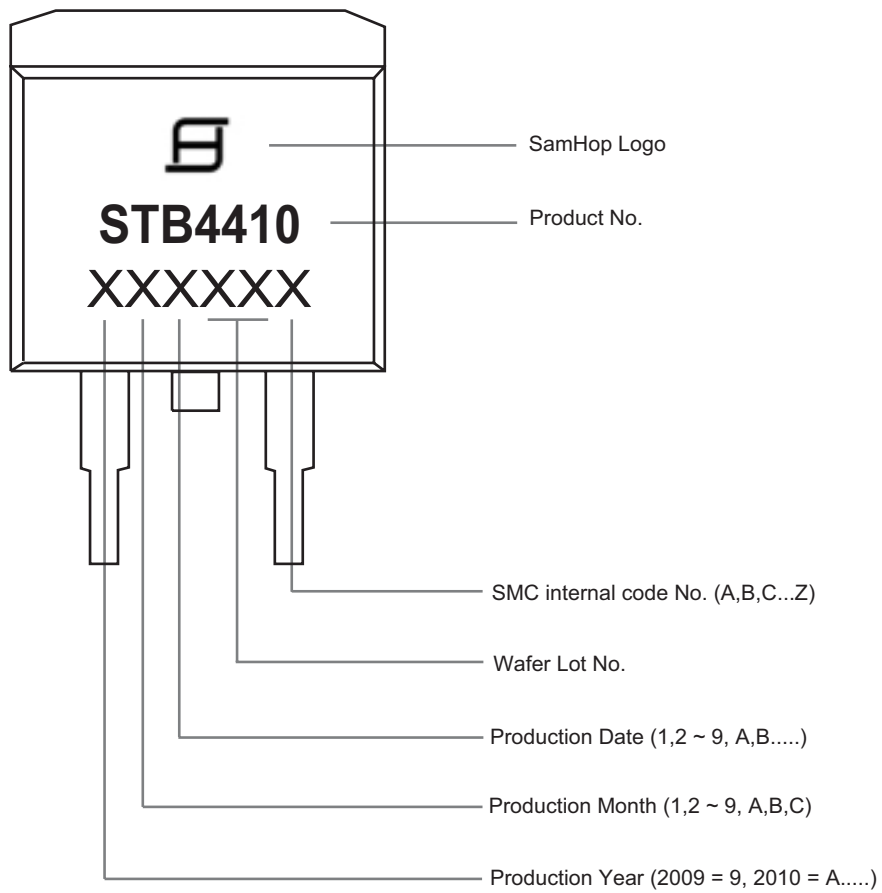
Dec,26,2014

STB4410 STP4410

Ver 1.0

TOP MARKING DEFINITION

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Dec,26,2014