



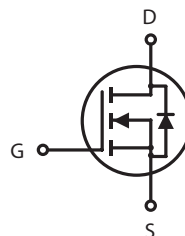
N-Channel Logic Level Enhancement Mode Field Effect Transistor

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	A
		T _C =70°C	63	A
I _{DM}	-Pulsed ^{a c}		390	A
E _{AS}	Avalanche Energy ^d		576	mJ
P _D	Maximum Power Dissipation	T _C =25°C	75	W
		T _C =70°C	52.5	W
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

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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.

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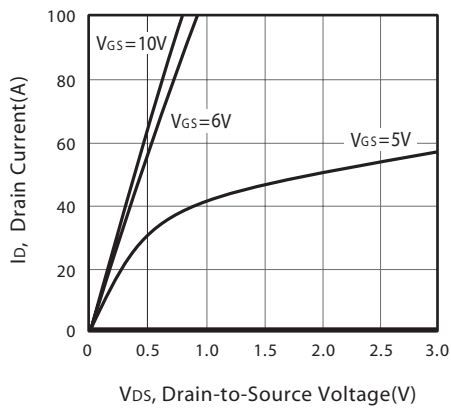


Figure 1. Output Characteristics

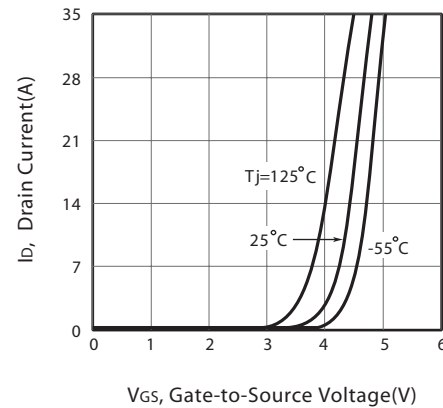


Figure 2. Transfer Characteristics

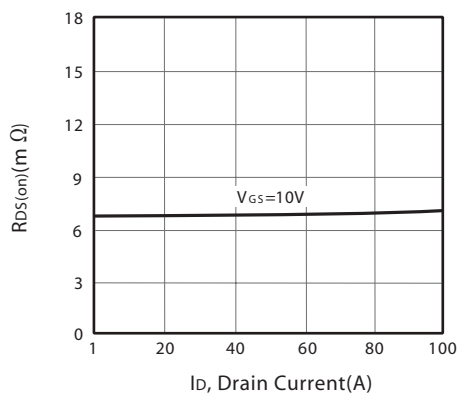


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

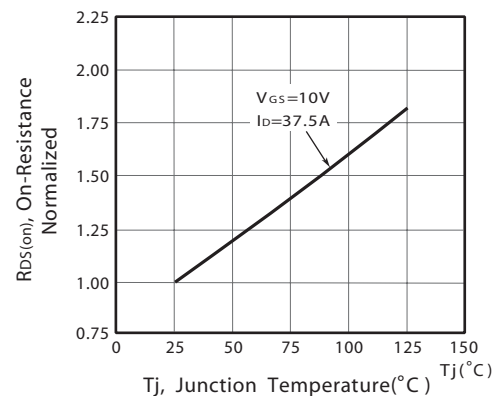


Figure 4. On-Resistance Variation with Drain Current and Temperature

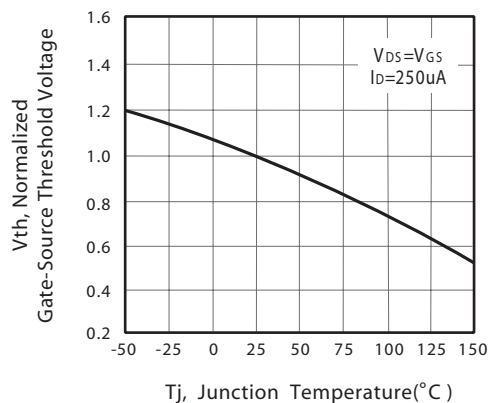


Figure 5. Gate Threshold Variation with Temperature

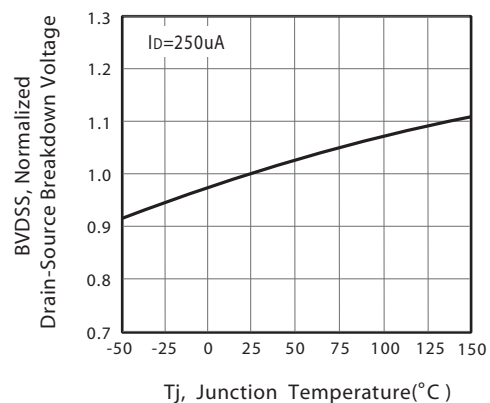


Figure 6. Breakdown Voltage Variation with Temperature

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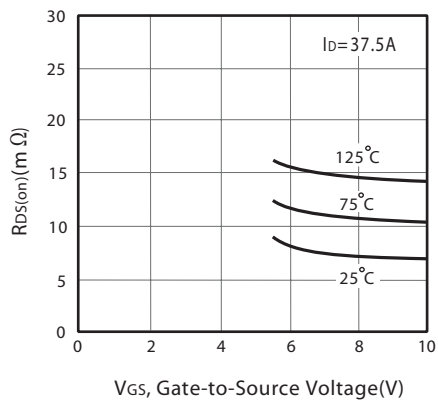


Figure 7. On-Resistance vs. Gate-Source Voltage

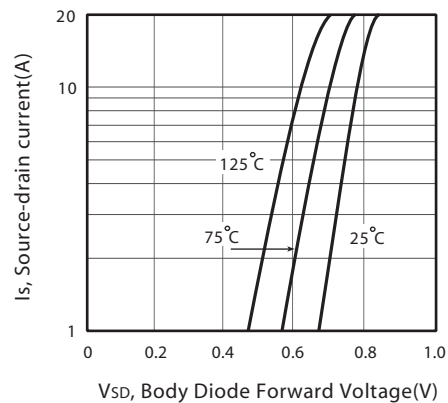


Figure 8. Body Diode Forward Voltage Variation with Source Current

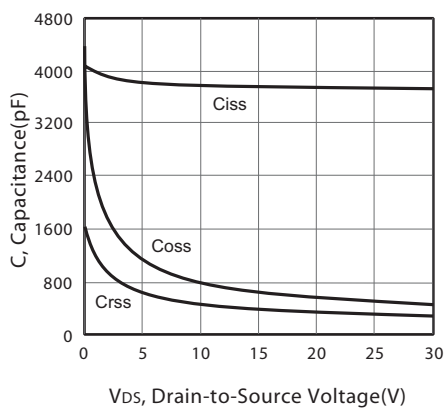


Figure 9. Capacitance

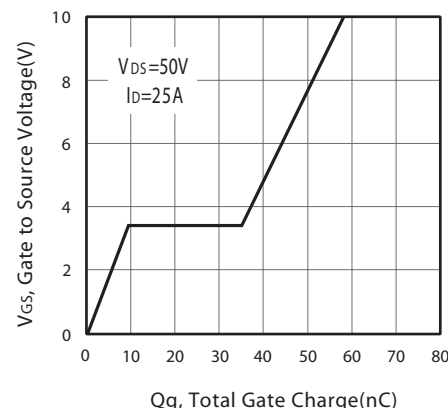


Figure 10. Gate Charge

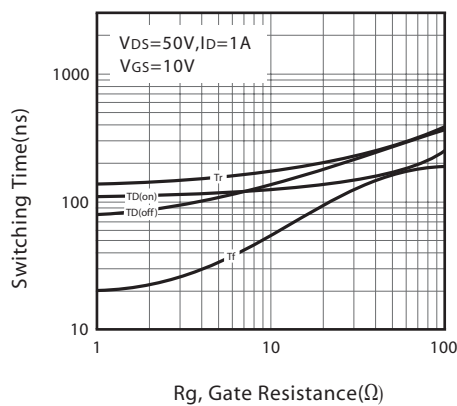


Figure 11. switching characteristics

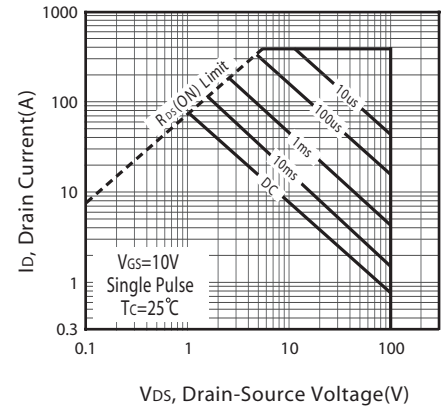
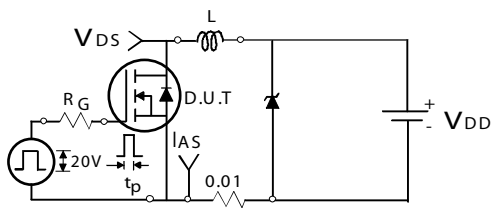


Figure 12. Maximum Safe Operating Area

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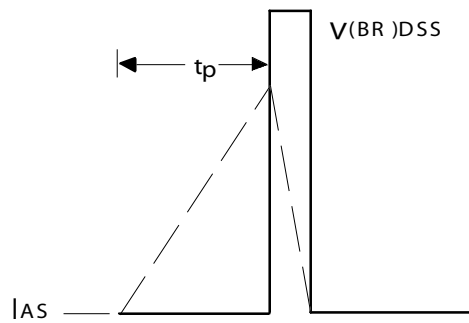
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Unclamped Inductive Test Circuit

Figure 13a.



Unclamped Inductive Waveforms

Figure 13b.

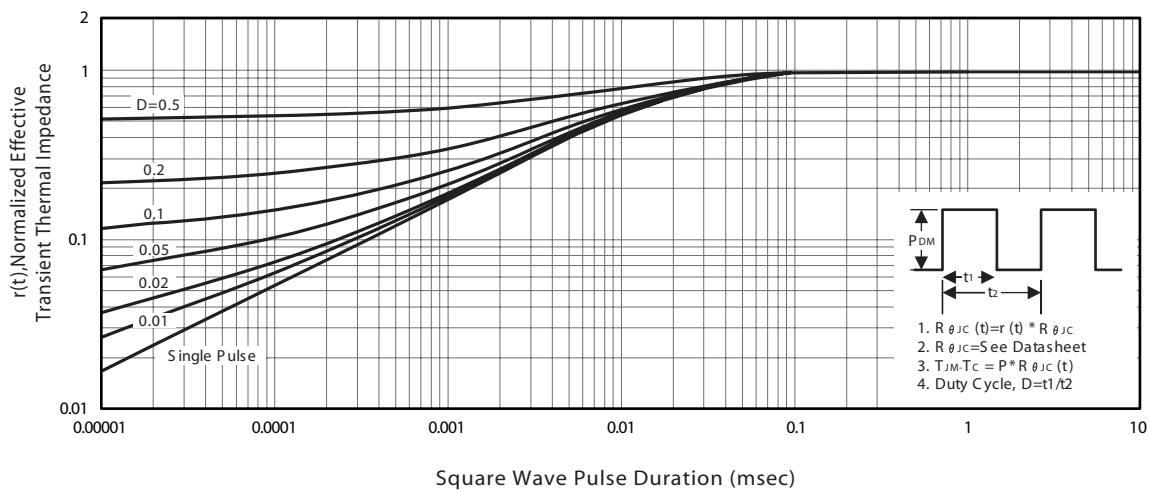


Figure 14. Normalized Thermal Transient Impedance Curve

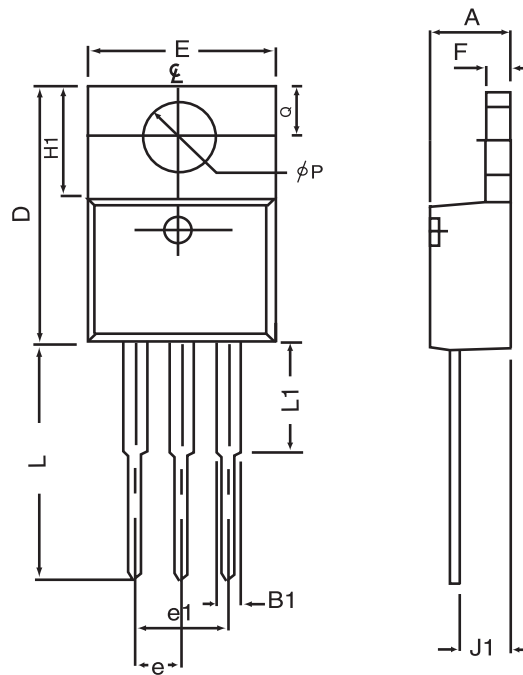
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PACKAGE OUTLINE DIMENSIONS

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

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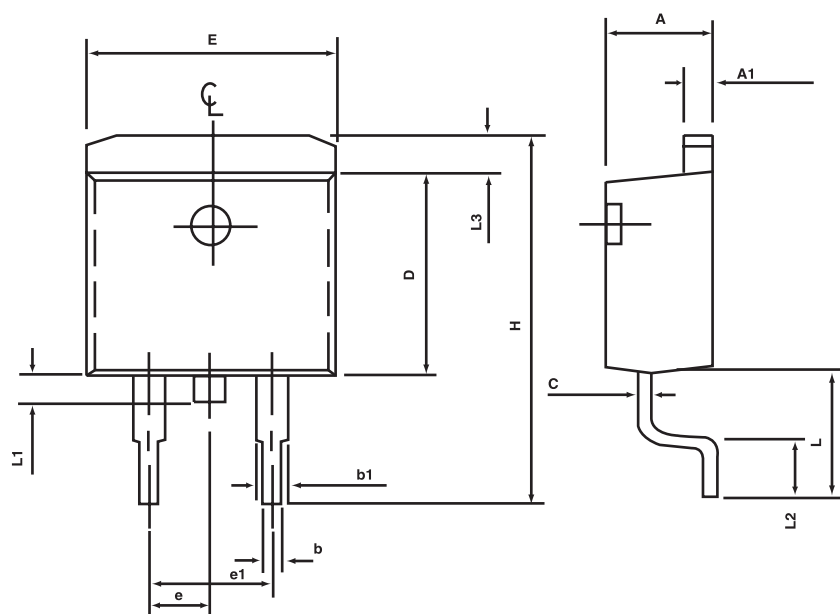
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PACKAGE OUTLINE DIMENSIONS

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	

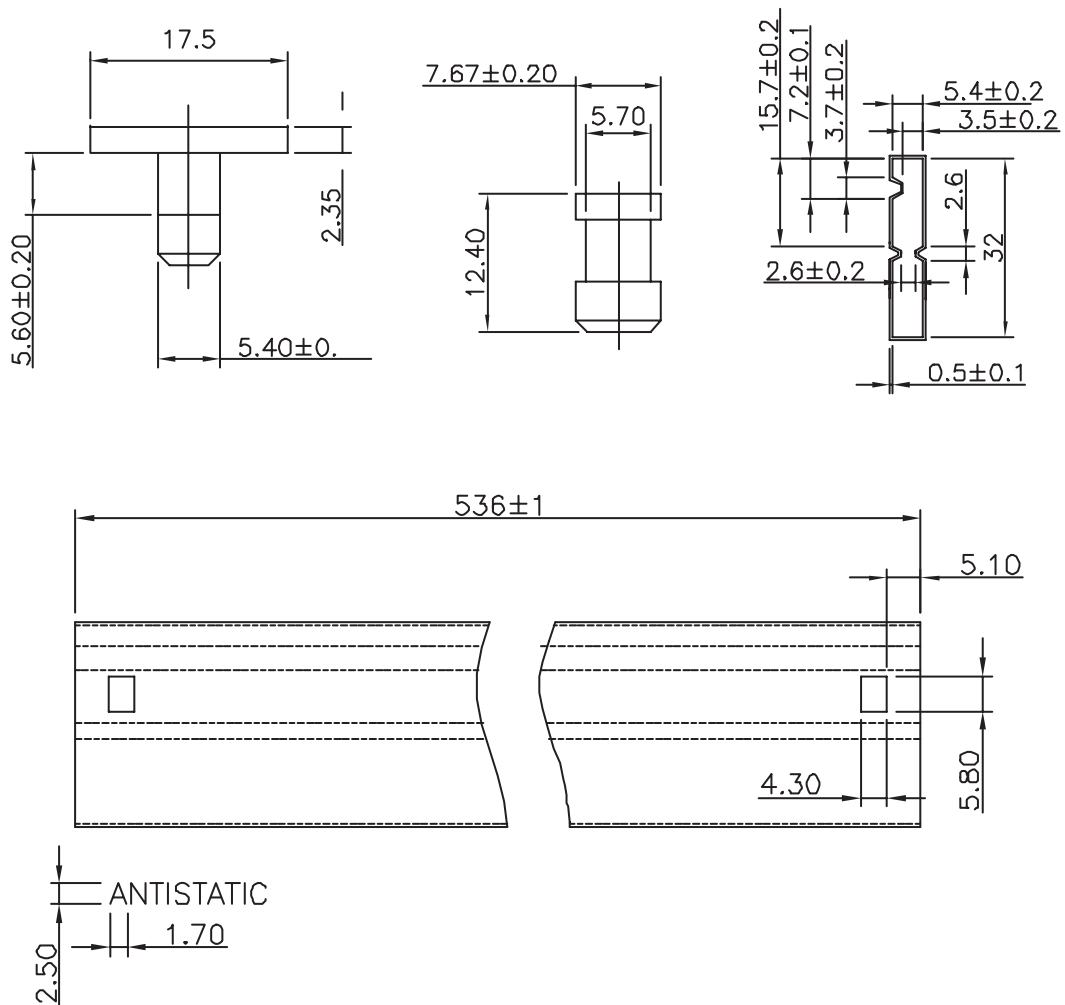
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TO-220/263AB Tube



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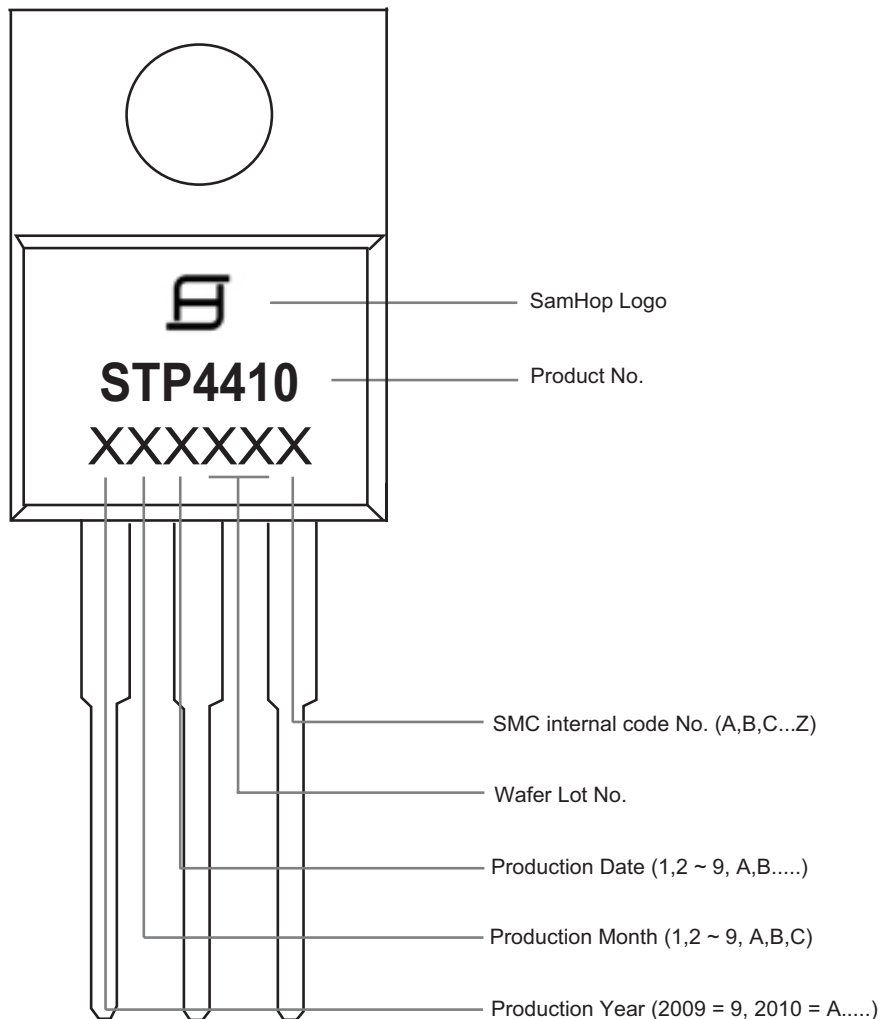
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TOP MARKING DEFINITION

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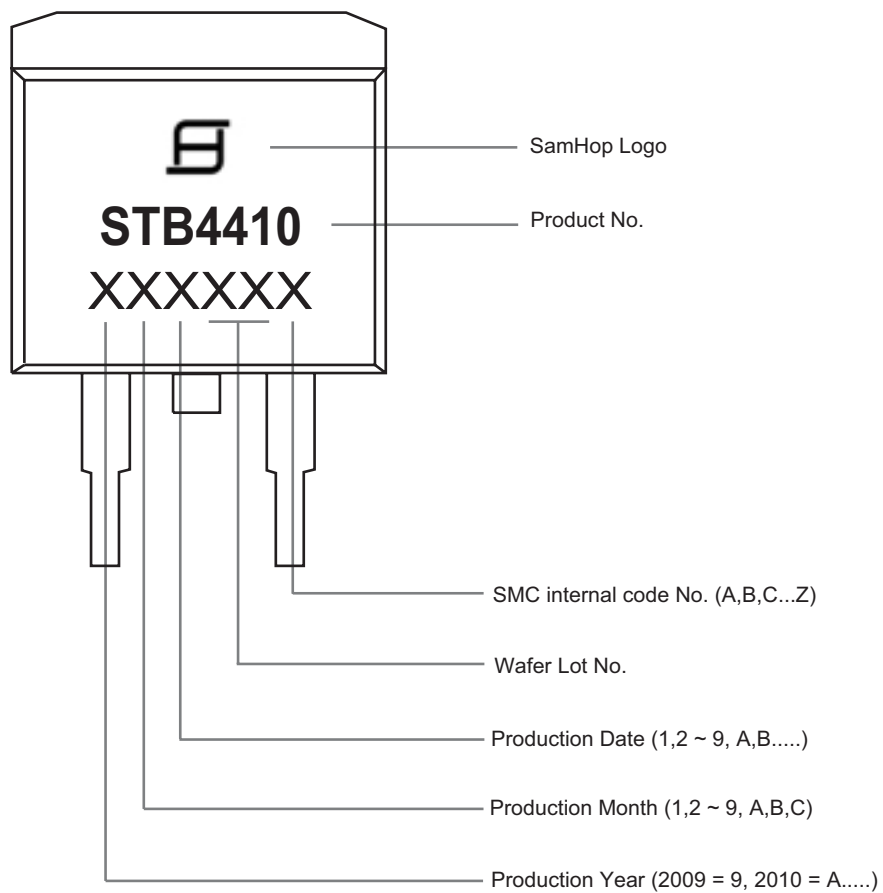
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TOP MARKING DEFINITION

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