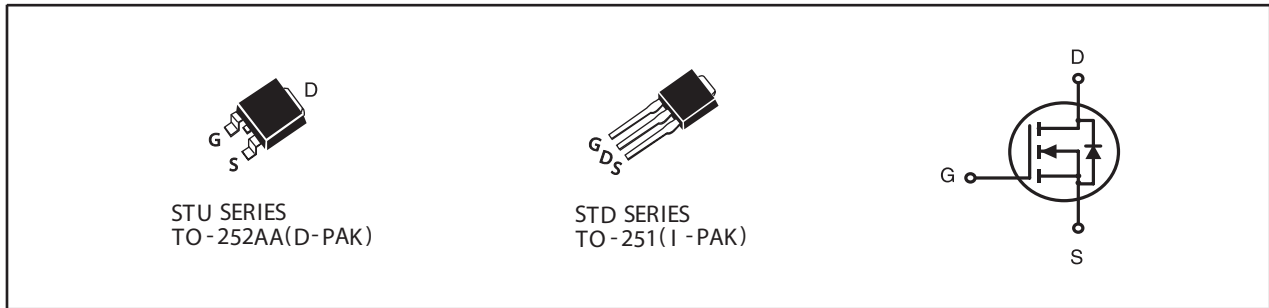


**N-Channel Logic Level Enhancement Mode Field Effect Transistor****PRODUCT SUMMARY**

VDSS	ID	RDS(ON) (mΩ) Max
100V	6A	353 @ VGS=10V
		553 @ VGS=4.5V

FEATURES

- Super high dense cell design for low RDS(ON).
- Rugged and reliable.
- TO-252 and TO-251 Package.

**ABSOLUTE MAXIMUM RATINGS (TC=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 ^{a e}	T _C =25°C	6
		T _C =70°C	4.8
I _{DM}	-Pulsed ^b	17	A
E _{AS}	Single Pulse Avalanche Energy ^d	3.6	mJ
P _D	Maximum Power Dissipation	T _C =25°C	42
		T _C =70°C	27
T _J , T _{STG}	Operating Junction and Storage Temperature Range	-55 to 150	°C

THERMAL CHARACTERISTICS

R _{θJC}	Thermal Resistance, Junction-to-Case	3	°C/W
R _{θJA}	Thermal Resistance, Junction-to-Ambient	50	°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 =10mA	100			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =80V , V _{GS} =0V			1	μA
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 =250μA	1	2	3	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =10V , I _D =3A		282	353	m ohm
		V _{GS} =4.5V , I _D =2A		410	553	m ohm
g _{FS}	Forward Transconductance	V _{DS} =10V , I _D =3A		4.5		S
DYNAMIC CHARACTERISTICS ^c						
C _{ISS}	Input Capacitance	V _{DS} =25V, V _{GS} =0V f=1.0MHz		273		pF
C _{OSS}	Output Capacitance			25		pF
C _{RSS}	Reverse Transfer Capacitance			18		pF
SWITCHING CHARACTERISTICS ^c						
t _{D(ON)}	Turn-On Delay Time	V _{DD} =50V I _D =1A V _{GS} =10V R _{GEN} = 6 ohm		8.5		ns
t _r	Rise Time			9.6		ns
t _{D(OFF)}	Turn-Off Delay Time			15.2		ns
t _f	Fall Time			2.5		ns
Q _g	Total Gate Charge	V _{DS} =50V, I _D =3A, V _{GS} =10V		4.3		nC
Q _{gs}	Gate-Source Charge	V _{DS} =50V, I _D =3A, V _{GS} =10V		1		nC
Q _{gd}	Gate-Drain Charge			1.6		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =1A		0.8	1.3	V
Notes						
a.Surface Mounted on FR4 Board, t ≤ 10sec.						
b.Pulse Test:Pulse Width ≤ 300us, Duty Cycle ≤ 2%.						
c.Guaranteed by design, not subject to production testing.						
d.Starting T _J =25°C, L=0.5mH, V _{DD} = 50V.(See Figure13)						
e.Drain current limited by maximum junction temperature.						

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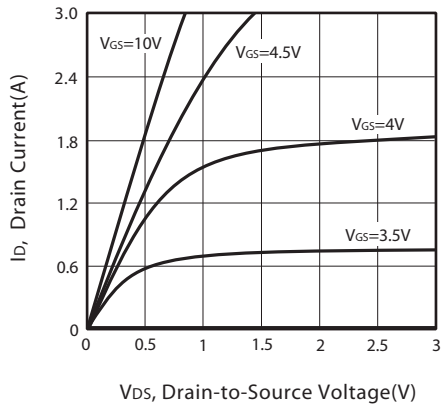


Figure 1. Output Characteristics

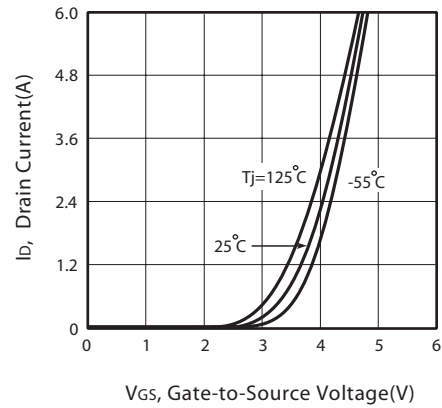


Figure 2. Transfer Characteristics

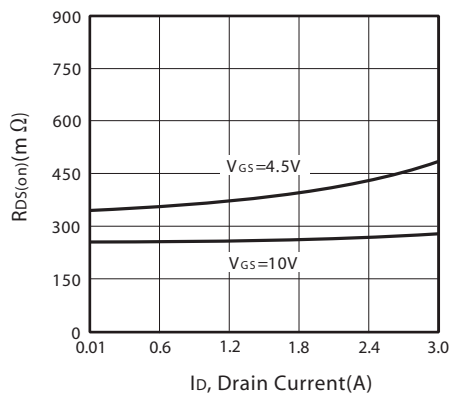


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

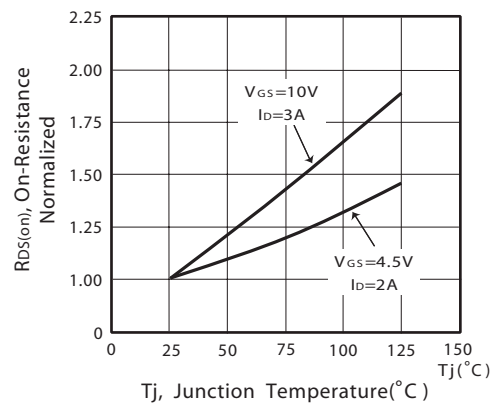


Figure 4. On-Resistance Variation with Drain Current and Temperature

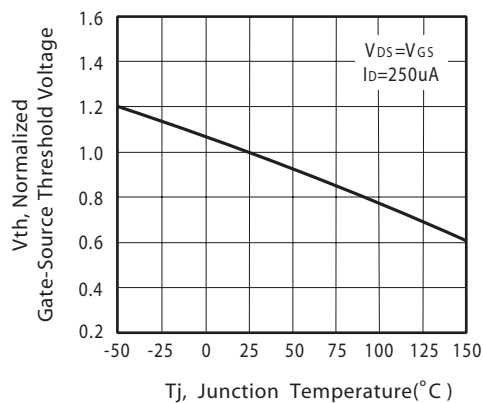


Figure 5. Gate Threshold Variation with Temperature

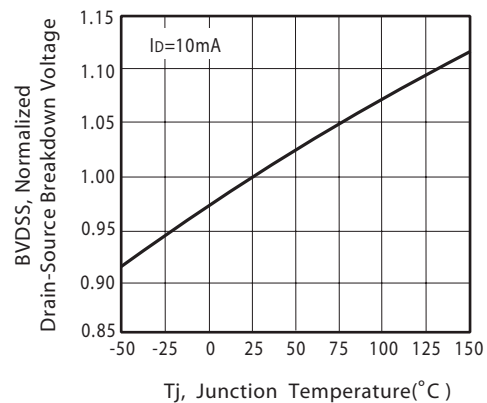


Figure 6. Breakdown Voltage Variation with Temperature

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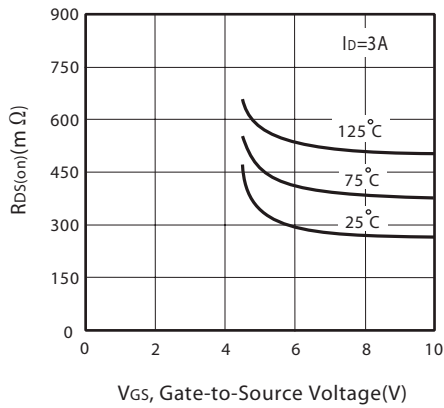


Figure 7. On-Resistance vs. Gate-Source Voltage

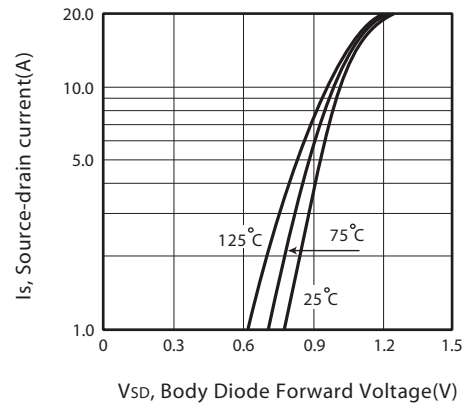


Figure 8. Body Diode Forward Voltage Variation with Source Current

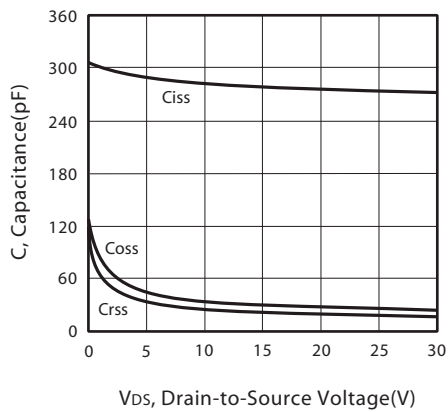


Figure 9. Capacitance

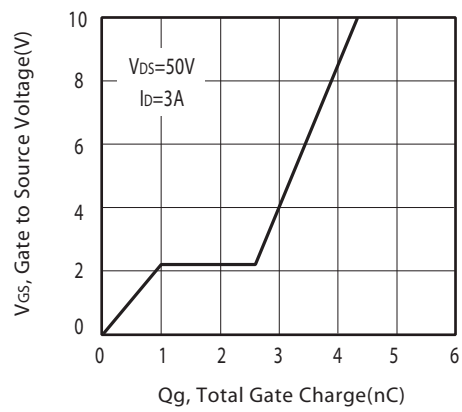


Figure 10. Gate Charge

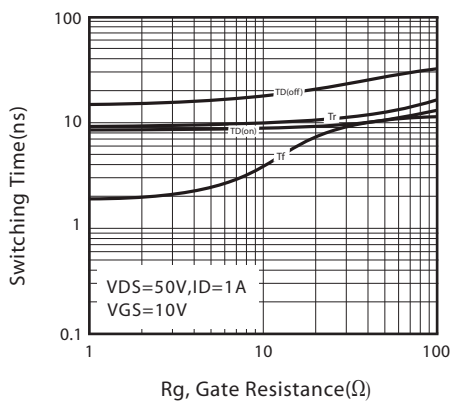


Figure 11. switching characteristics

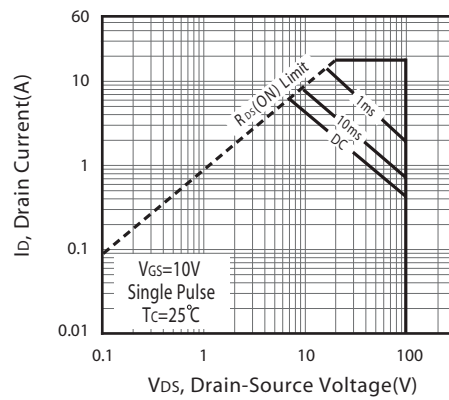
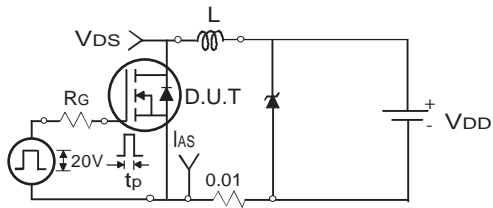


Figure 12. Maximum Safe Operating Area

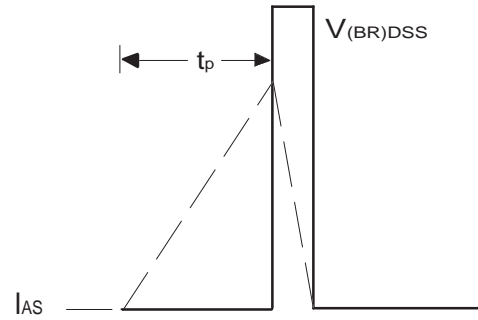
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Uncamped Inductive Test Circuit

Figure 13a.



Unclamped Inductive Waveforms

Figure 13b.

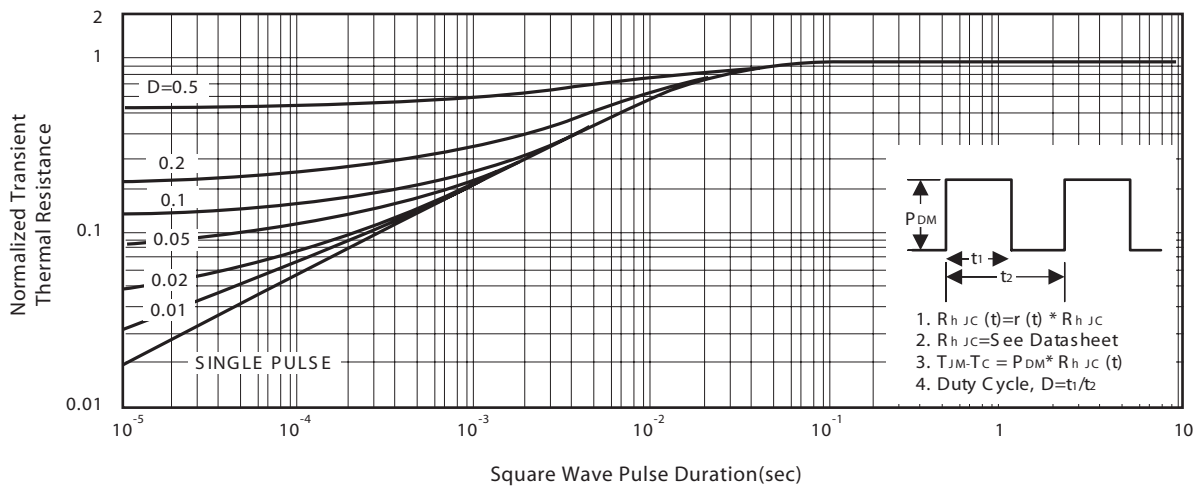
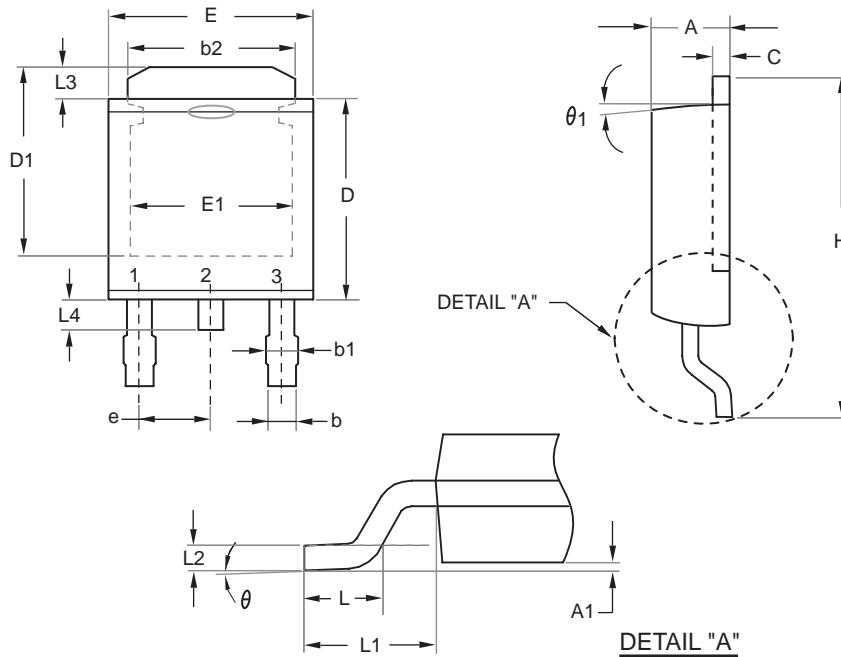


Figure 14. Normalized Thermal Transient Impedance Curve

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SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.100	2.500	0.083	0.098
A1	0.000	0.200	0.000	0.008
b	0.400	0.889	0.016	0.035
b1	0.770	1.140	0.030	0.045
b2	4.800	5.460	0.189	0.215
C	0.400	0.600	0.016	0.024
D	5.300	6.223	0.209	0.245
D1	4.900	5.515	0.193	0.217
E	6.300	6.731	0.248	0.265
E1	4.400	5.004	0.173	0.197
e	2.290 REF		0.090 BSC	
H	8.900	10.400	0.350	0.409
L	1.397	1.770	0.055	0.070
L1	2.743 REF.		0.108 REF.	
L2	0.508 REF.		0.020 REF.	
L3	0.890	1.700	0.035	0.067
L4	0.500	1.100	0.020	0.043
theta	0°	10°	0°	10°
theta1	7° REF.		7° REF.	

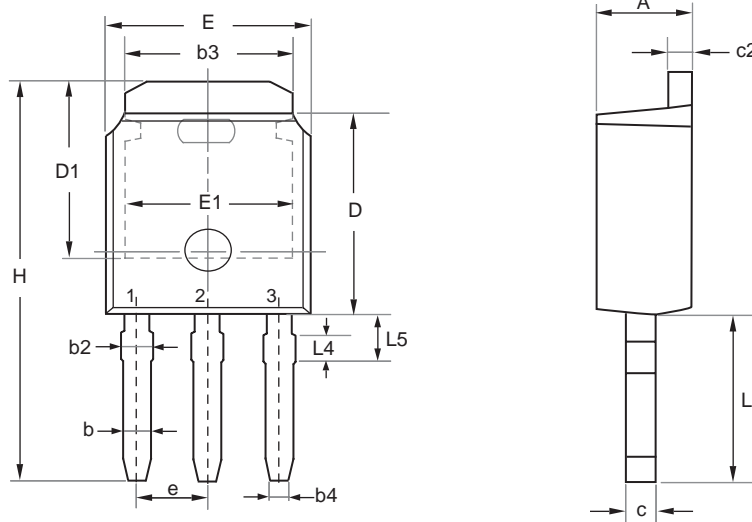
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PACKAGE OUTLINE DIMENSIONS

TO-251



SYMBOL	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
E	6.400	6.731	0.252	0.265
L	3.980	4.280	0.157	0.169
L4	0.698 REF		0.027 REF	
L5	0.972	1.226	0.038	0.048
D	6.000	6.223	0.236	0.245
H	11.050	11.450	0.435	0.450
b	0.640	0.880	0.025	0.035
b2	0.770	1.140	0.030	0.045
b3	5.210	5.460	0.205	0.215
b4	0.450	0.550	0.018	0.022
e	2.286 BSC		0.090 BSC	
A	2.200	2.380	0.087	0.094
c	0.400	0.600	0.016	0.024
c2	0.400	0.600	0.016	0.024
D1	5.100	---	0.201	---
E1	4.400	---	0.173	---

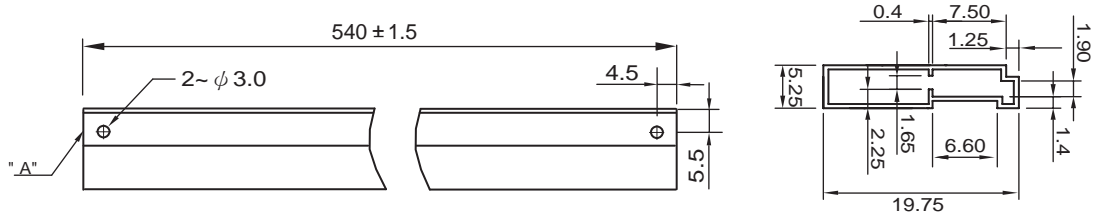
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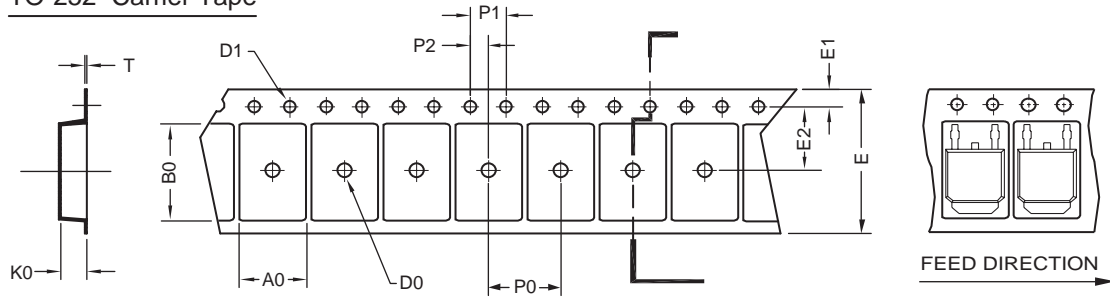
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TO-251 Tube/TO-252 Tape and Reel Data

TO-251 Tube



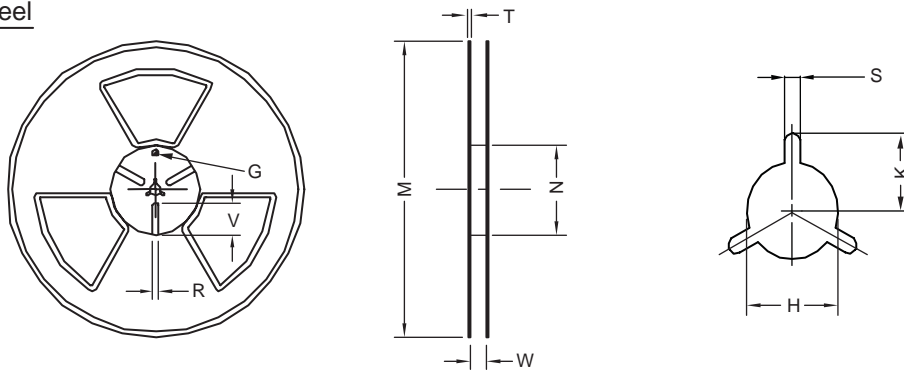
TO-252 Carrier Tape



UNIT:mm

PACKAGE	A0	B0	K0	D0	D1	E	E1	E2	P0	P1	P2	T
TO-252 (16 mm)	6.96 ± 0.1	10.49 ± 0.1	2.79 ± 0.1	$\phi 2$	$\phi 1.5$ $+ 0.1$ $- 0$	16.0 ± 0.3	1.75 ± 0.1	7.5 ± 0.15	8.0 ± 0.1	4.0 ± 0.1	2.0 ± 0.15	0.3 ± 0.05

TO-252 Reel



UNIT:mm

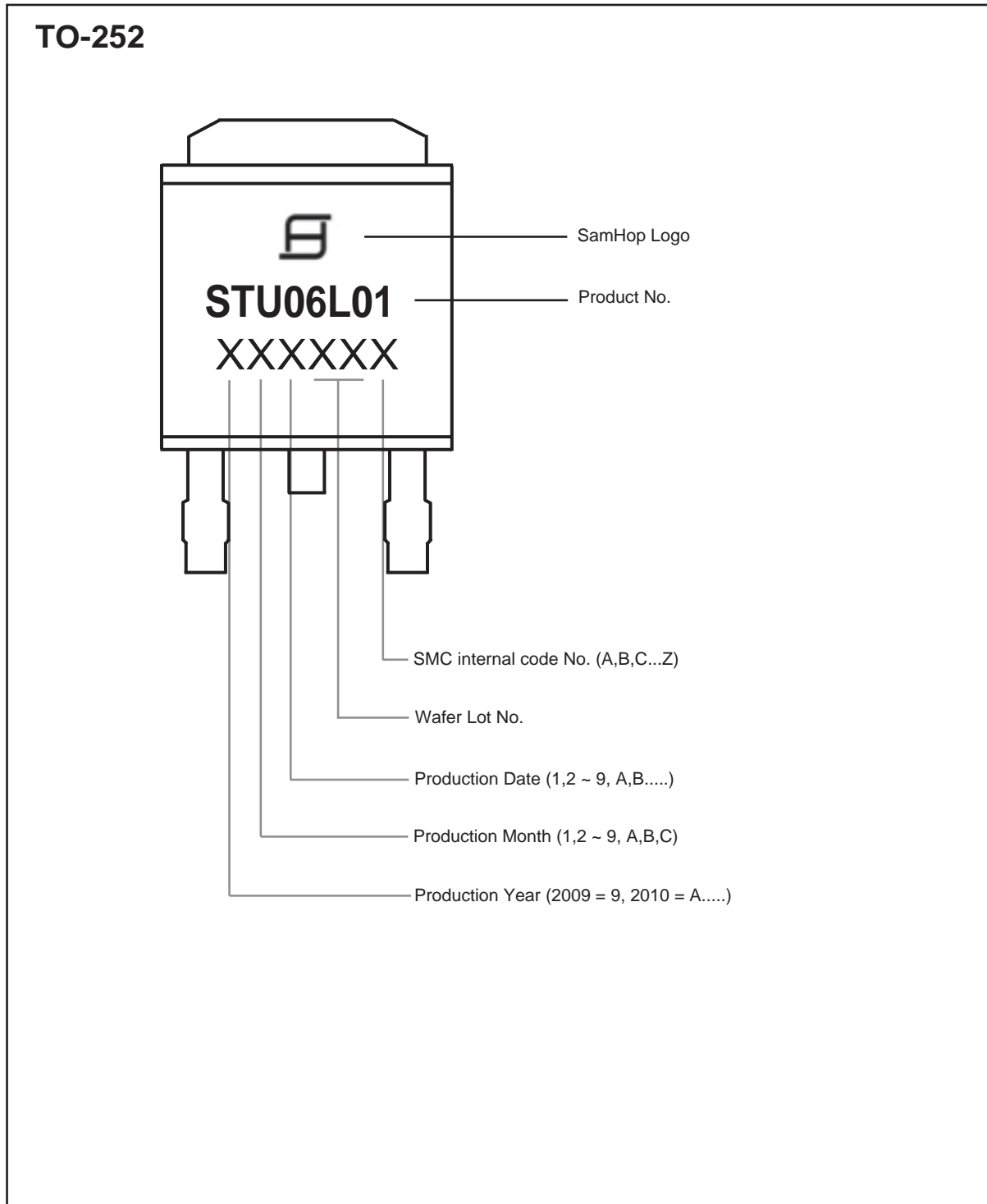
TAPE SIZE	REEL SIZE	M	N	W	T	H	K	S	G	R	V
16 mm	$\phi 330$	$\phi 330$ ± 0.5	$\phi 97$ ± 1.0	17.0 $+ 1.5$ $- 0$	2.2	$\phi 13.0$ $+ 0.5$ $- 0.2$	10.6	2.0 ± 0.5	---	---	---

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TOP MARKING DEFINITION



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