DP8205B
Dual N-Channel Enhancement Power MOSFET

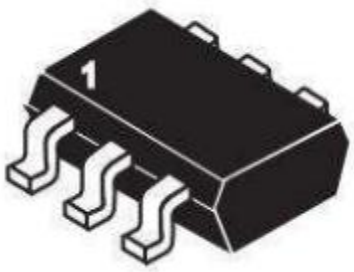
GENERAL DESCRIPTION

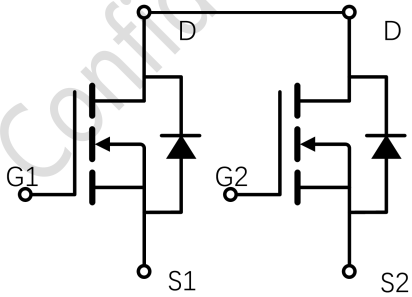
DP8205B uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.

PRODUCT SUMMARY

VDS	20V
ID (at VGS=4.5V)	6.5A
RDS(ON) (at VGS = 4.5V)	<16mR
RDS(ON) (at VGS = 2.5V)	<21mR

TSSOP-8





ABSOLUTE MAXIMUM RATINGS TA=25°C unless otherwise noted

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	VDS	20	V
Gate-Source Voltage	VGS	±12	V
Drain Current-Continuous @ T_J=25℃	I_D	6.5	A
Pulsed[b]	IDM	25	A
Drain-Sourse Diode Forward Current[a]	I_S	6.5	A
Maximum Power Dissipation[a]	P_D	1.25	W
Operating Junction and Storage Temperature Range	TJ,TSTG	-55 To 150	℃

THERMAL CHARACTERISTIC

Parameter	Symbol	Limit	Unit
Thermal Resistance,Junction-to-Ambient a	RθJA	100	℃/W

ELECTRICAL CHARACTERISTICS (TA=25℃ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typc	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V,V_{GS}=0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±12V,V_{DS}=0V	-	-	±100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	0.5	0.7	1.2	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=4,5A	10	13.5	16	mΩ
		V_{GS}=2.5V, I_D=3.5A	12	16.5	21	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5V,I_D=4.5A	-	10	-	S
Dynamic Characteristics						
Input Capacitance	C_{lss}	V_{DS}=10V, V_{GS}=0V, F=1.0MHz	-	947	-	pF
Output Capacitance	C_{oss}		-	167	-	pF
Reverse Transfer Capacitance	C_{rss}		-	115	-	pF
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=10V, I_D=1A V_{GS}=4.5V, R_{GEN}=6Ω , R_L=10Ω	-	10	20	nS
Turn-on Rise Time	t_r		-	11	25	nS
Turn-Off Delay Time	$t_{d(off)}$		-	35	70	nS
Turn-Off Fall Time	t_f		-	30	60	nS
Total Gate Charge	Q_g	V_{DS}=10V, I_D=6A, V_{GS}=4.5V	-	11	18	nC
Gate-Source Charge	Q_{gs}		-	3.2	-	nC
Gate-Drain Charge	Q_{gd}		-	1.5	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=1.7A	-	0.79	1.2	V

Notes:

1. **Surface Mounted on FR4 Board ,T<10 sec ;**
2. **Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.**
3. **Guaranteed by Design, not subject to production testing.**

TYPICAL ELECTRICALAND THERMAL CHARACTERISTICS

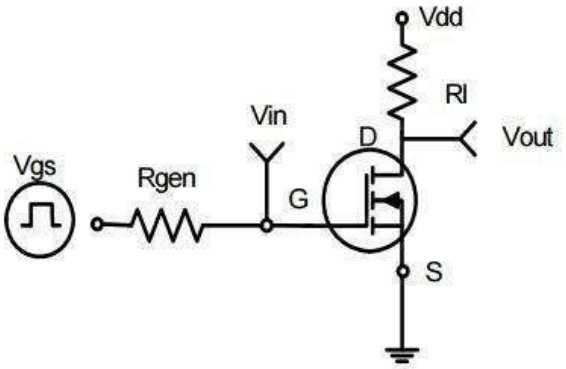


Figure 1:Switching Test Circuit

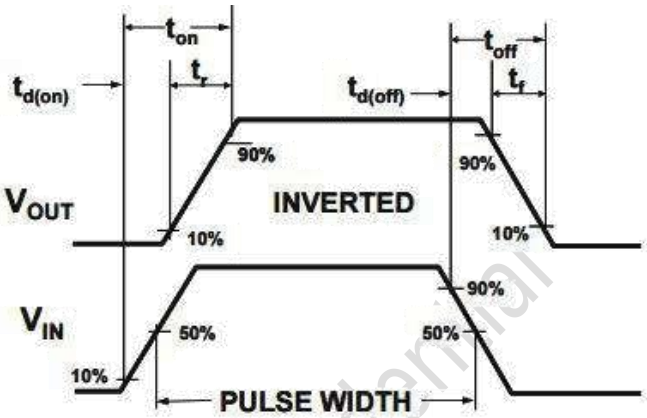


Figure 2:Switching Waveforms

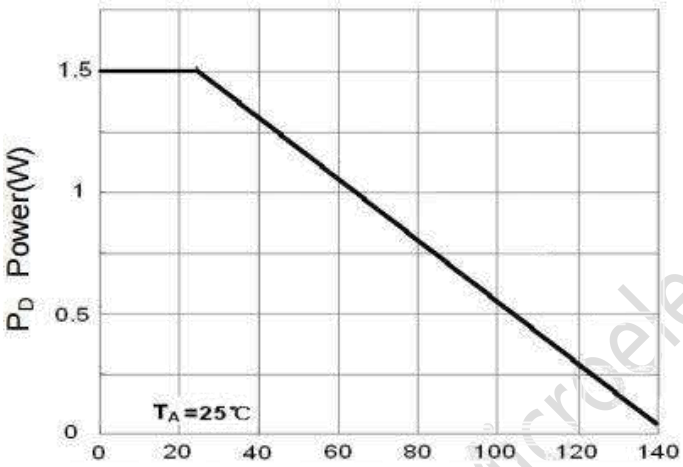


Figure 3 Power Dissipation

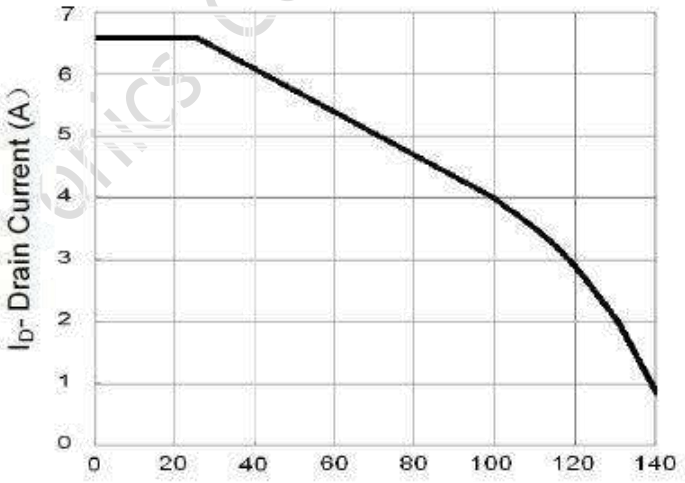


Figure 4 Drain Current

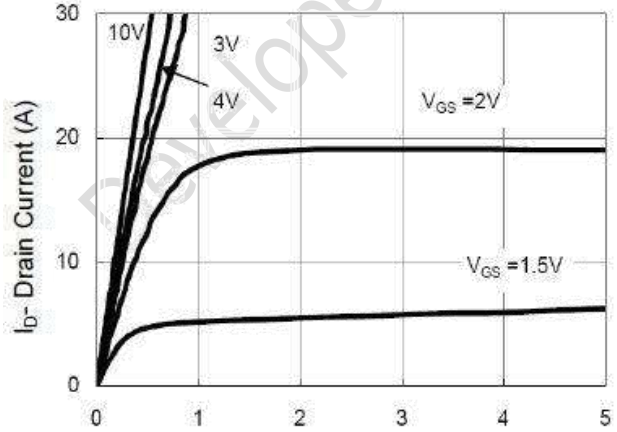


Figure 5 Output Characteristics

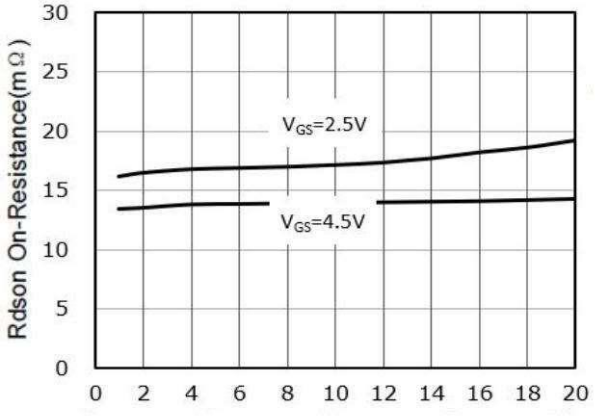


Figure 6 Drain-Source On-Resistance

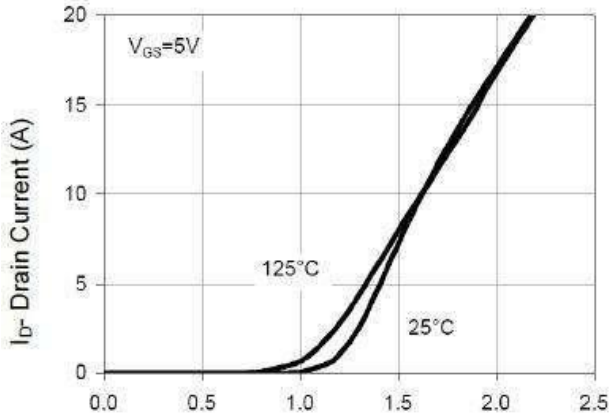


Figure 7 Transfer Characteristics

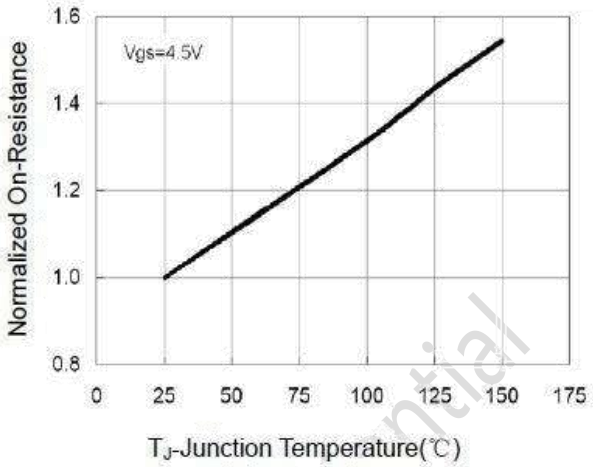


Figure 8 Drain-Source On-Resistance

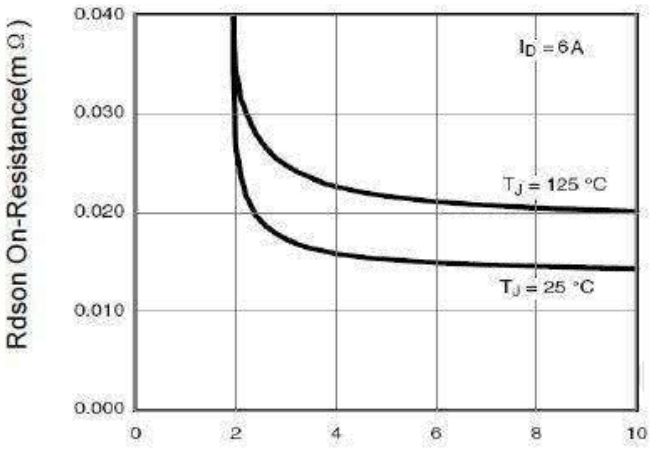


Figure 9 Rdson vs Vgs

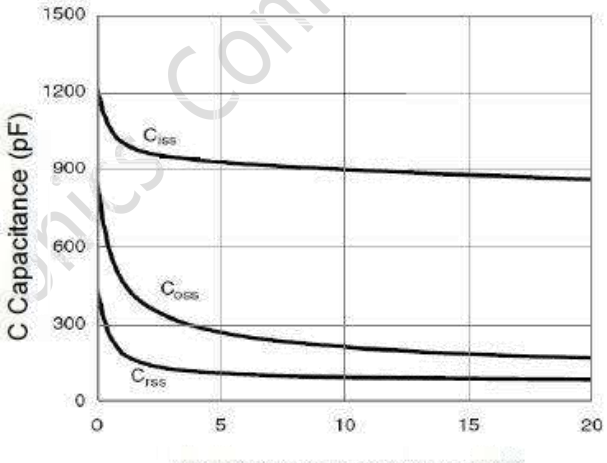


Figure 10 Capacitance vs Vds

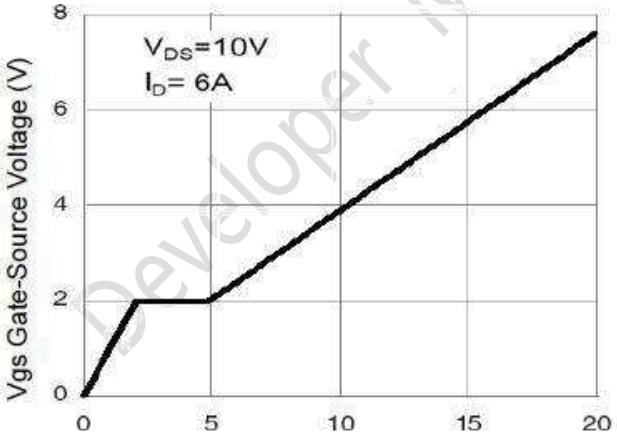


Figure 11 Gate Charge

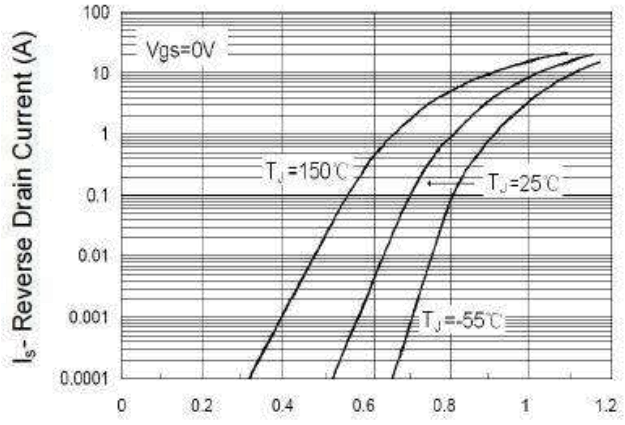


Figure 12 Source- Drain Diode Forward

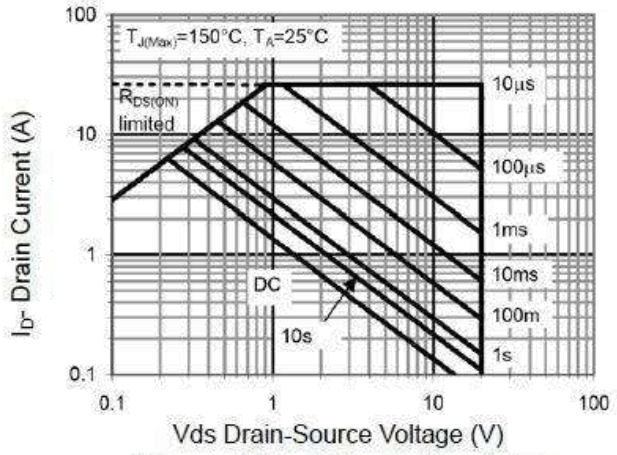


Figure 13 Safe Operation Area

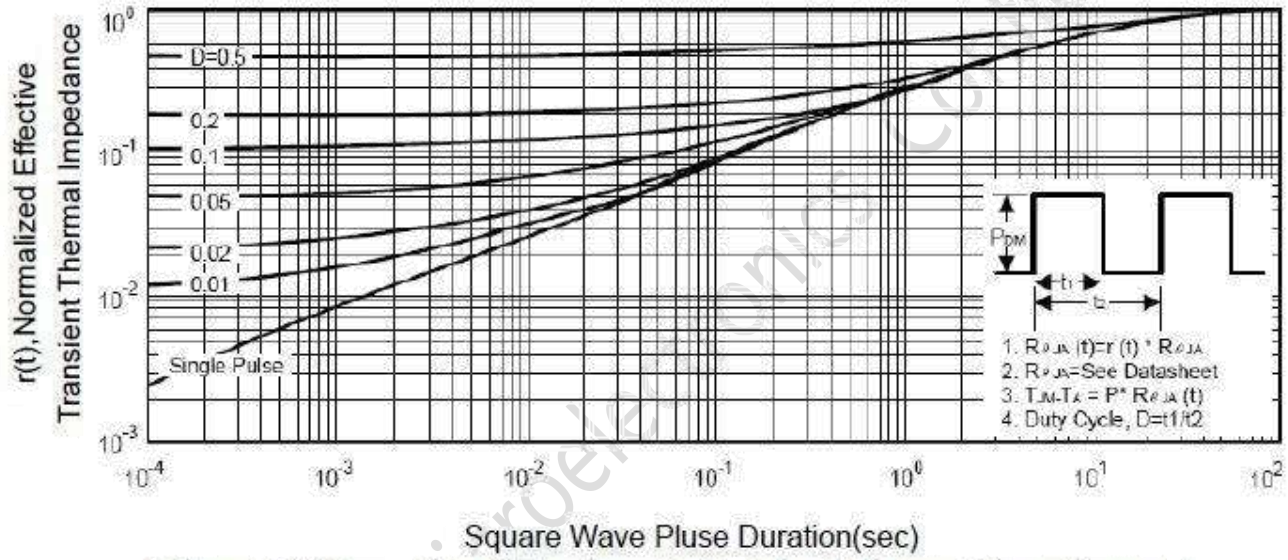
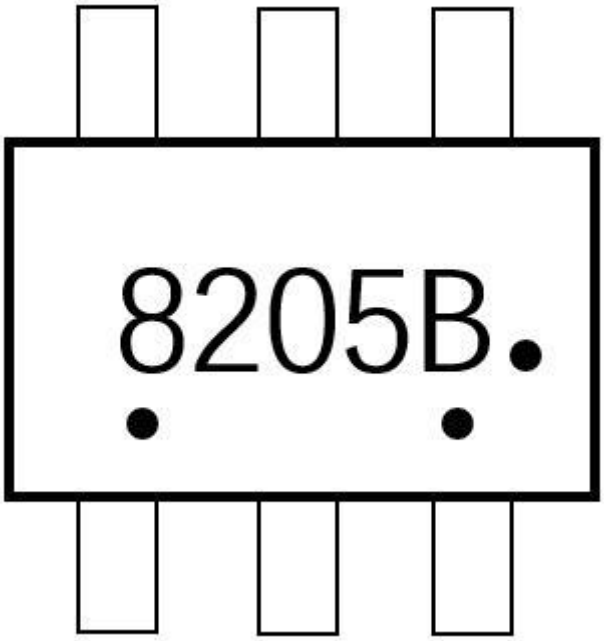
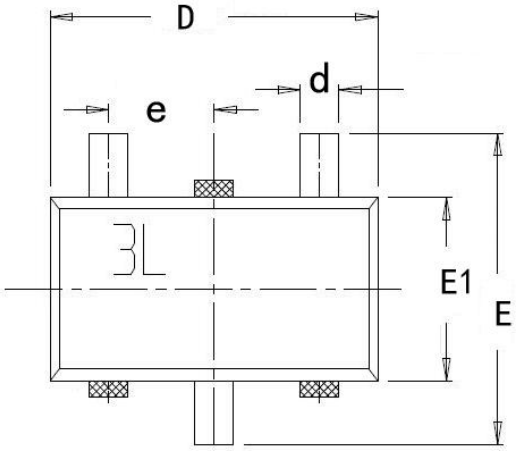


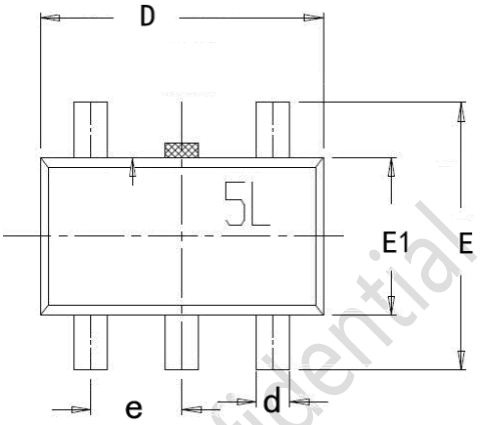
Figure 14 Normalized Maximum Transient Thermal Impedance

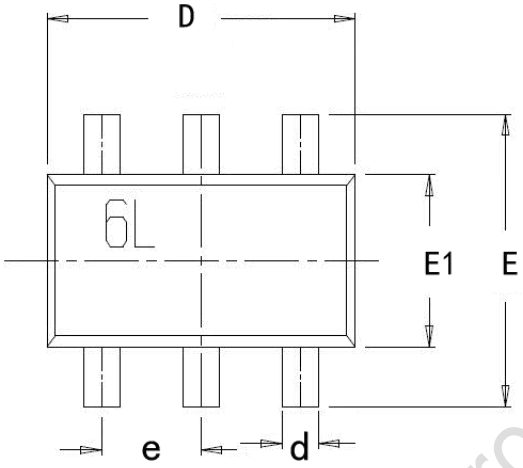
MARKING DESCRIPTION

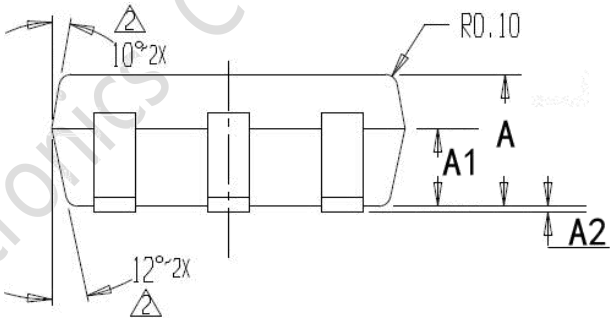


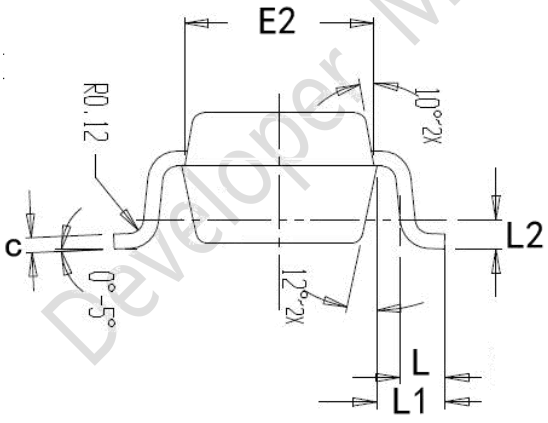
PACKAGE OUTLINE DIMENSIONS







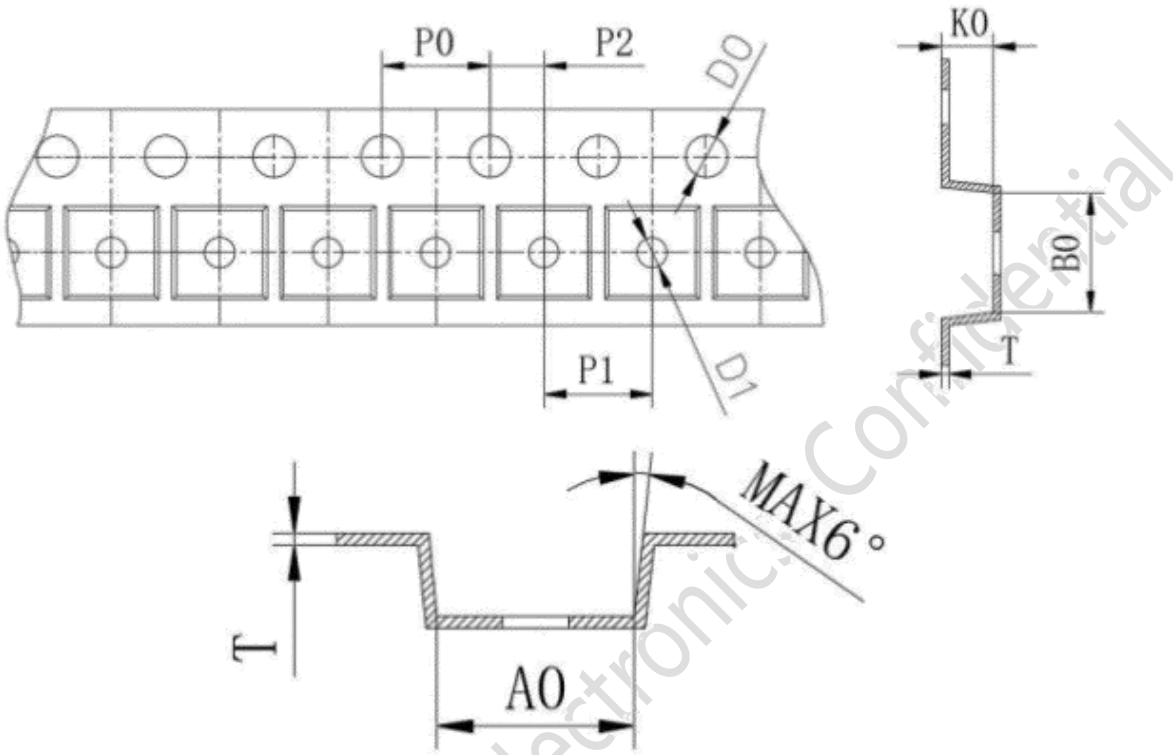




Symbol	Min	Nom	Max
A	1.050	1.100	1.150
A1	0.625	0.650	0.675
A2	0.010	0.050	0.090
c	0.047	0.127	0.207
D	2.900	2.950	3.000
d	0.325	0.350	0.375
E	2.720	2.800	2.880
E1	1.600	1.650	1.700
E2	1.550	1.600	1.650
e	0.925	0.950	0.975
L	0.300	0.380	0.460
L1	0.599REF		
L2	0.250BSC		

TAPE SIZE

SOT23-6



SYMBOL	A0	B0	K0	P0	P1	P2
SPEC	3.23±0.10	3.17±0.10	1.37±0.10	4.00±0.10	4.00±0.10	2.00±0.05
SYMBOL	T	E	F	D0	D1	W
SPEC	0.20±0.05	1.75±0.10	3.50±0.05	1.55±0.05	1.10±0.10	$8.00^{+0.20}_{-0.10}$

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