



### Product Summary

Part #	$V_{DS}$	$R_{DS(on).typ}$	$I_D$
DP8205B	20V	15mΩ	7.5A

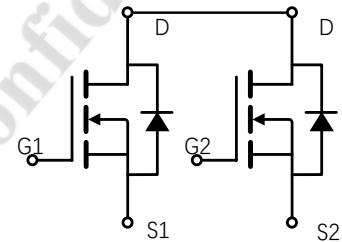
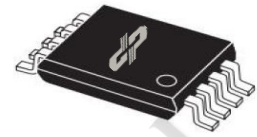
### Features

- Advanced high cell density Trench MOSFET technology
- Better  $R_{DS(on)}$  enabled by a low  $R_{DSon.sp}$
- Excellent  $Q_g \times R_{DS(on)}$  product(FOM)

### Applications

- Battery management
- Power Management Switches

TSSOP-8



### Package Marking and Ordering Information

Part #	Marking	Package	Packing
DP8205B	8205B	TSSOP-8	Reel



### Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-source voltage	$V_{DS}$	20	V
Continuous drain current $T_C = 25^\circ\text{C}$ (Silicon limit) $T_C = 70^\circ\text{C}$ (Silicon limit)	$I_D$	7.5 6	A
Pulsed drain current ( $T_C = 25^\circ\text{C}$ , $t_p$ limited by $T_{jmax}$ )	$I_{D\ pulse}$	30	A
Gate-Source voltage	$V_{GS}$	$\pm 12$	V
Power dissipation ( $T_C = 25^\circ\text{C}$ )	$P_{tot}$	1.8	W
Operating junction and storage temperature	$T_j, T_{stg}$	-55...+150	$^\circ\text{C}$

[1].EAS is tested at starting  $T_j = 25^\circ\text{C}$ ,  $V_{GS} = 10\text{V}$ .

### Thermal Resistance

Parameter	Symbol	Max	Unit
Thermal resistance, Junction-to-Lead	$R_{thJL}$	70	$^\circ\text{C}/\text{W}$
Thermal resistance, junction – ambient(min. footprint)	$R_{thJA}$	100	

**Electrical Characteristic (at  $T_j = 25\text{ }^\circ\text{C}$ , unless otherwise specified)**

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
<b>Static Characteristic</b>						
Drain-source breakdown voltage	$BV_{DSS}$	20	-	-	V	$V_{GS}=0V, I_D=250\mu A$
Gate threshold voltage	$V_{GS(th)}$	0.5	0.7	1.2	V	$V_{DS}=V_{GS}, I_D=250\mu A$
Zero gate voltage drain current	$I_{DSS}$	-	-	1	$\mu A$	$V_{DS}=20V, V_{GS}=0V$ $T_j=25^\circ C$
		-	-	100		$T_j=125^\circ C$
Gate-source leakage current	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{GS}=\pm 12V, V_{DS}=0V$
Drain-source on-state resistance	$R_{DS(on)}$	-	15.0	20.0	$m\Omega$	$T_j=25^\circ C$ $V_{GS}=4.5V, I_D=4.5A$
		-	17.0	24.0	$m\Omega$	$V_{GS}=2.5V, I_D=3.5A$
Gate resistance	$R_g$	-	-	5.0	$\Omega$	$V_{GS}=0V, V_{DS}=0V,$ $f=1MHz$
Transconductance <sup>[2]</sup>	$g_{fs}$	-	10	-	S	$V_{DS}=5V, I_D=4.5A$

**Dynamic Characteristic<sup>[2]</sup>**

Input Capacitance	$C_{iss}$	-	1002	-	pF	$V_{GS}=0V, V_{DS}=10V,$ $f=1MHz$
Output Capacitance	$C_{oss}$	-	197	-		
Reverse Transfer Capacitance	$C_{rss}$	-	105	-		
Gate Total Charge	$Q_g$	-	17	25	nC	$V_{GS}=4.5V, V_{DS}=10V,$ $I_D=6A, f=1MHz$
Gate-Source charge	$Q_{gs}$	-	4.3	-		
Gate-Drain charge	$Q_{gd}$	-	2.7	-		

**Body Diode Characteristic**

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Body Diode Forward Voltage	$V_{SD}$	-	0.8	1.2	V	$V_{GS}=0V, I_{SD}=1.7A$

[2]. Defined by design. Not subject to production test



### Typical Performance Characteristics

Fig 1: Output Characteristics

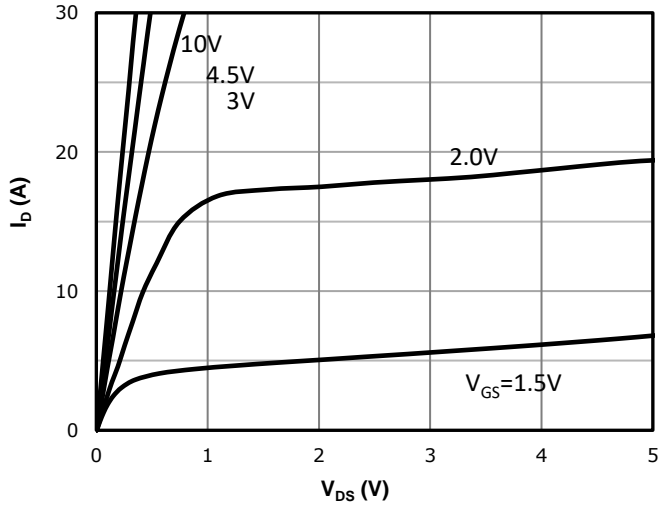


Fig 2: Transfer Characteristics

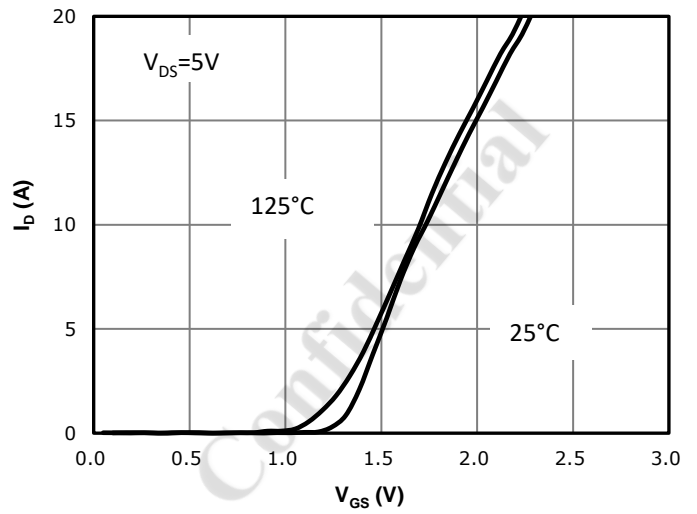


Fig 3: Rds(on) vs Drain Current and Gate Voltage

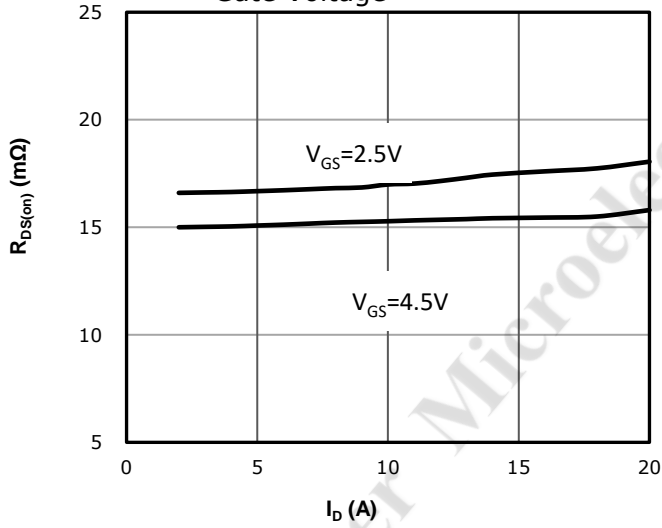


Fig 4: Rds(on) vs Gate Voltage

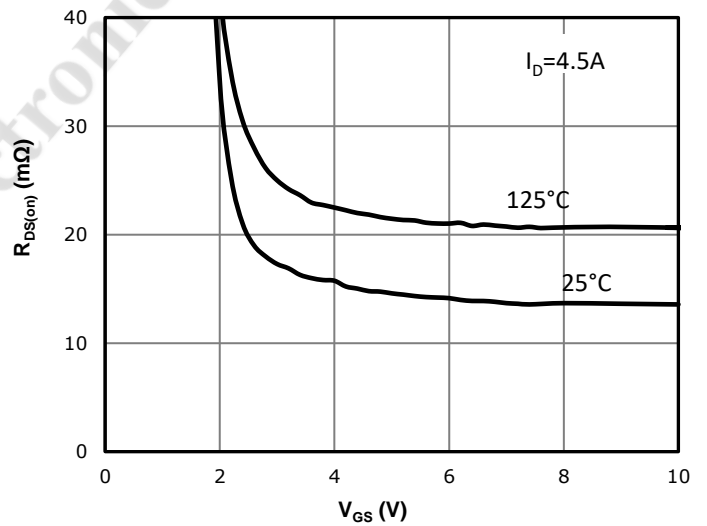


Fig 5: Rds(on) vs. Temperature

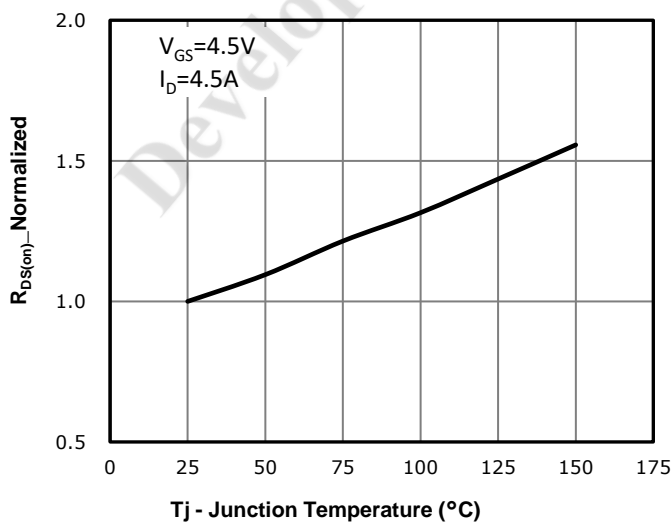


Fig 6: Capacitance Characteristics

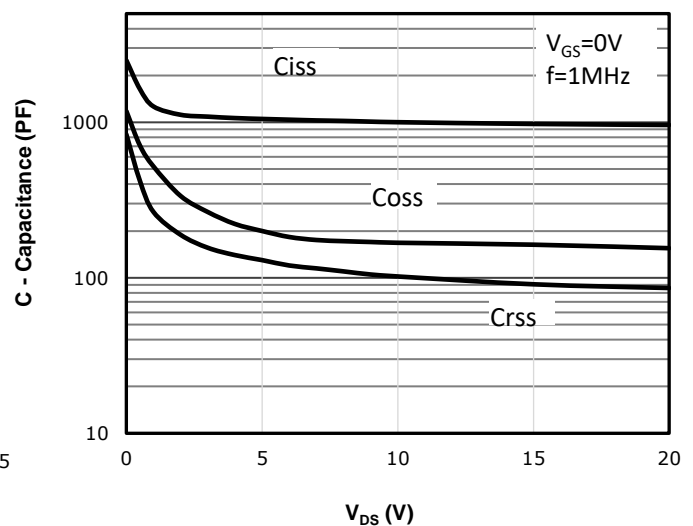




Fig 7: Gate Charge Characteristics

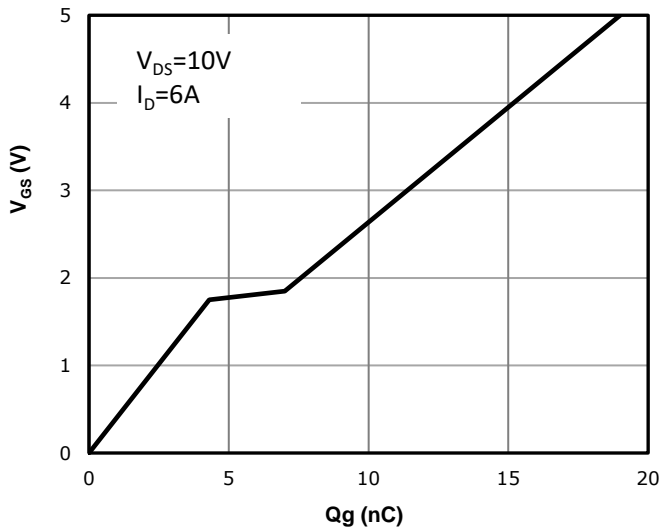


Fig 8: Body-diode Forward Characteristics

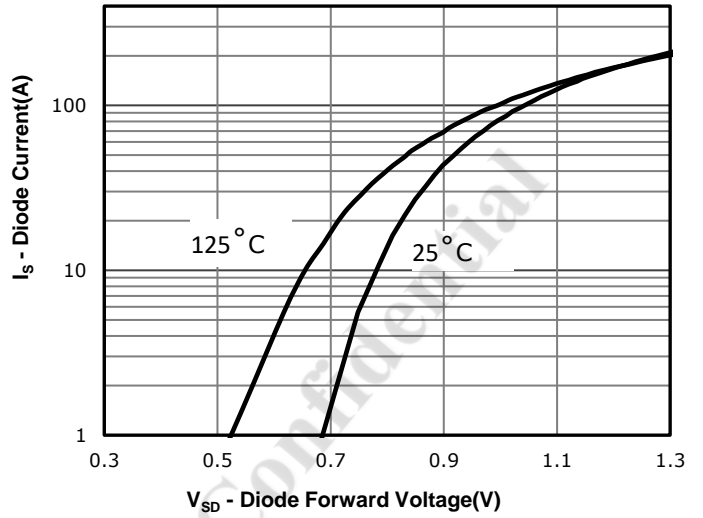


Fig 9: Power Dissipation

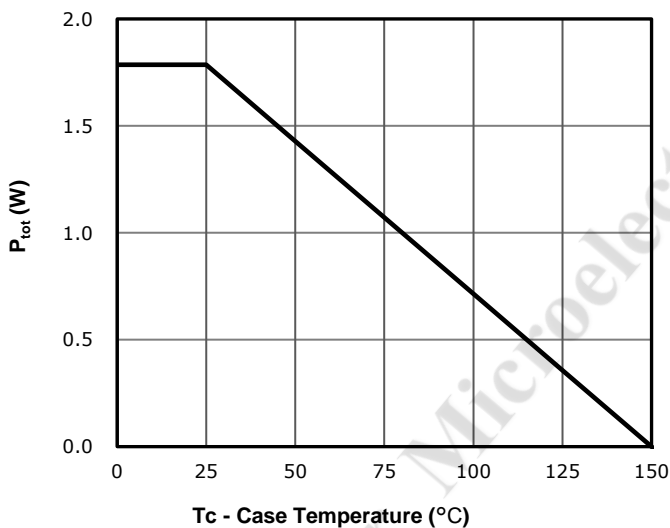


Fig 10: Drain Current Derating

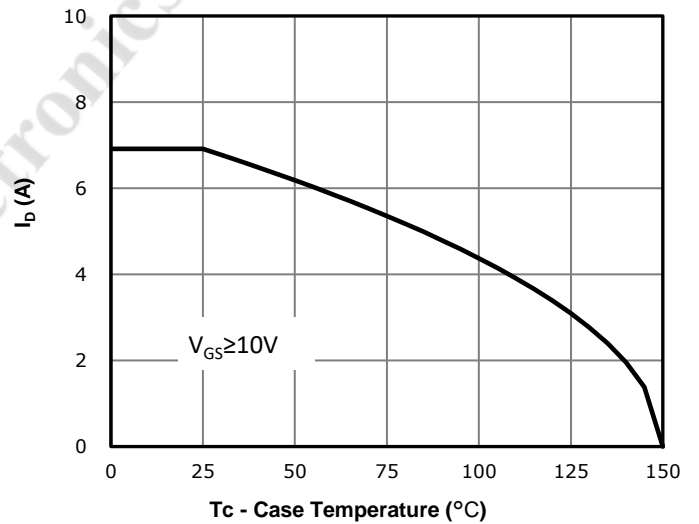


Fig 11: Safe Operating Area

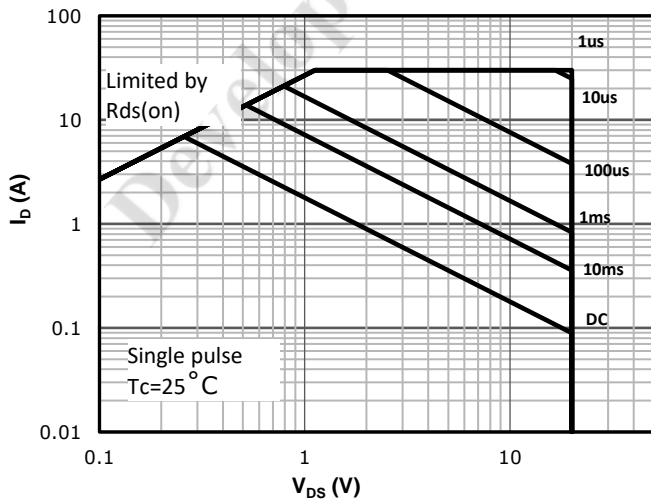
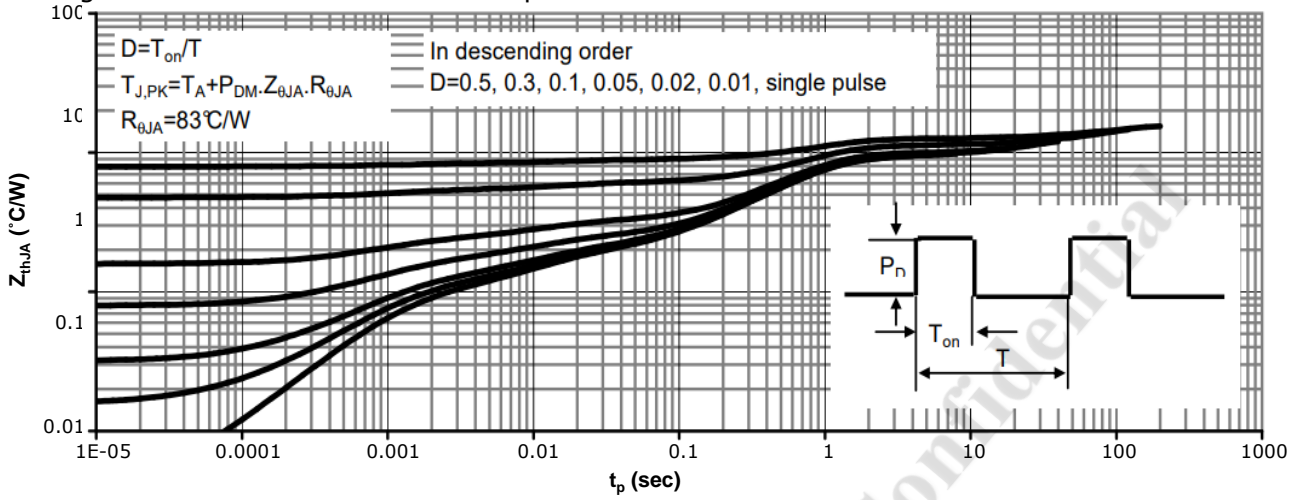




Fig 12: Max. Transient Thermal Impedance

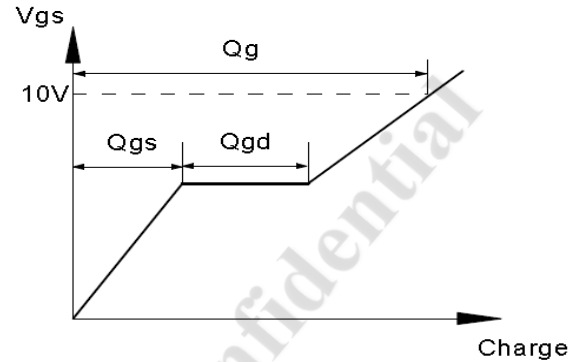
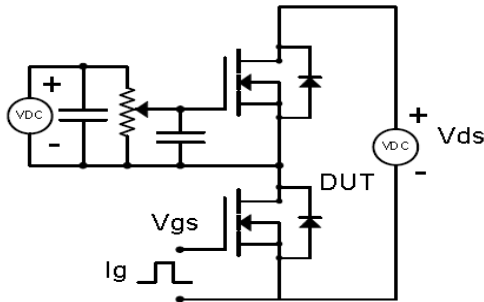


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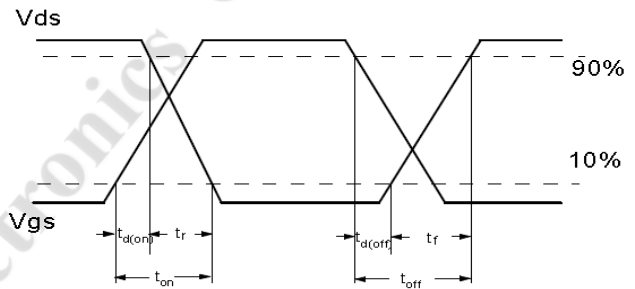
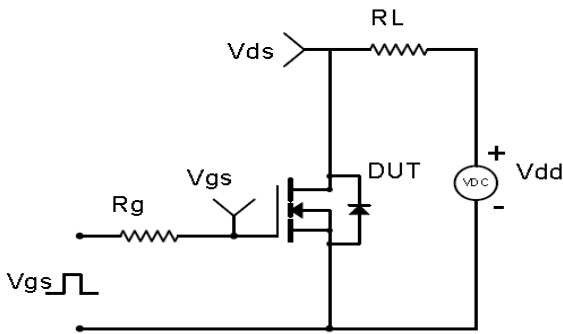


## Test Circuit & Waveform

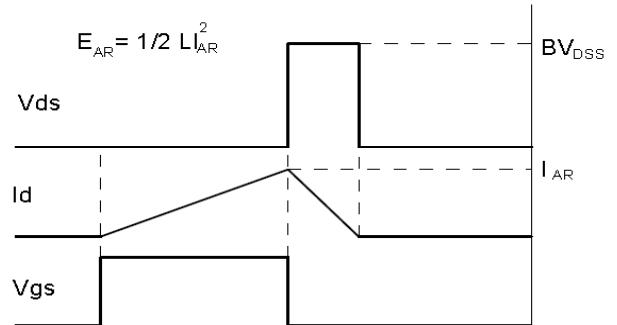
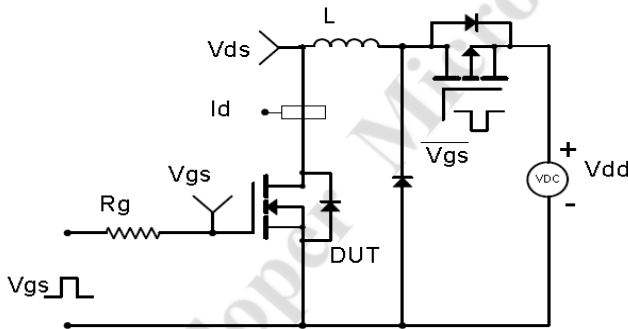
Gate Charge Test Circuit & Waveform



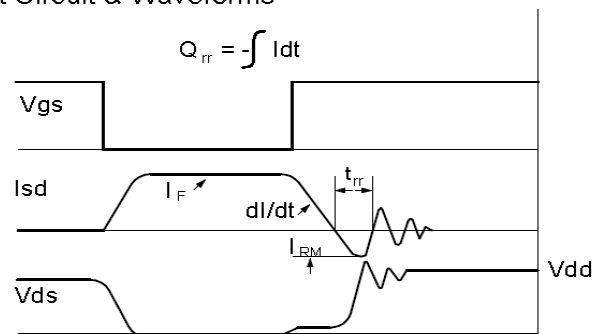
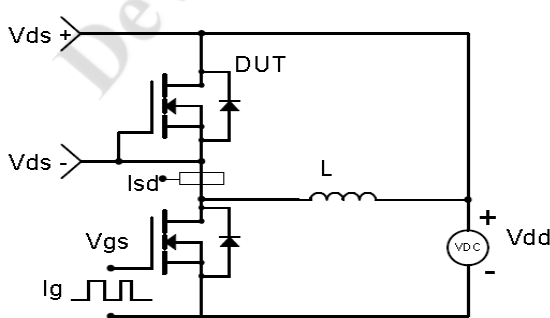
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

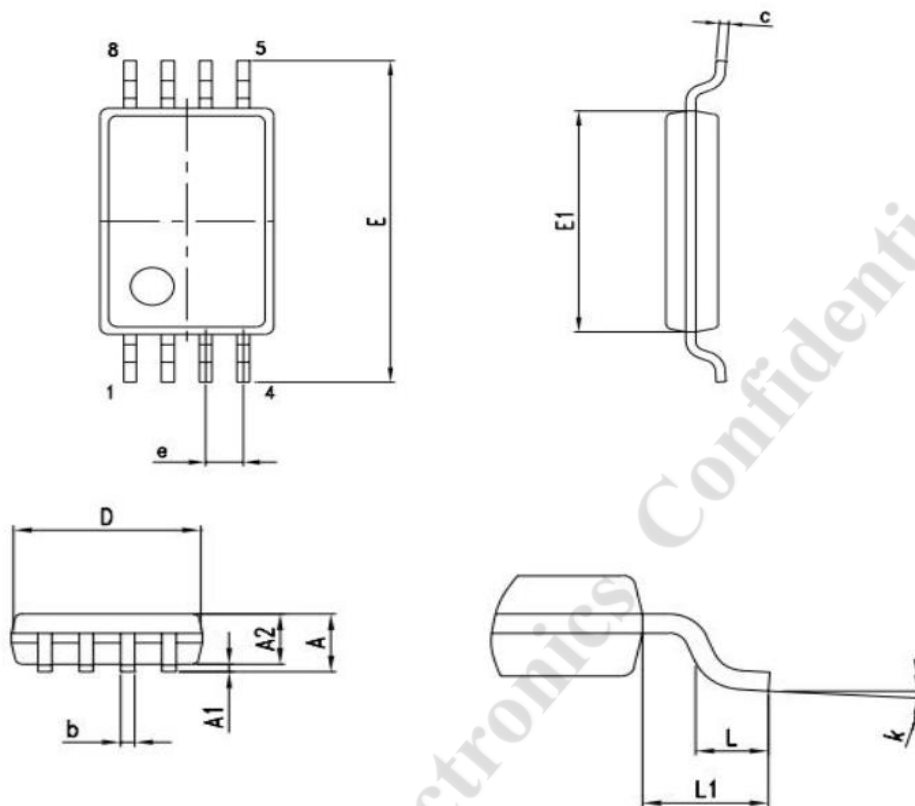


Diode Recovery Test Circuit & Waveforms





**Package Outline: TSSOP-8**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.05	1.20	0.041	0.047
A1	0.05	0.15	0.002	0.006
A2	0.80	1.05	0.031	0.041
b	0.19	0.30	0.007	0.012
c	0.09	0.20	0.004	0.008
D	2.90	3.10	0.114	0.122
E	6.20	6.60	0.244	0.260
E1	4.30	4.50	0.169	0.177
e	0.65BSC		0.252BSC	
L	0.45	0.75	0.018	0.030
L1	1.0BSC		0.039BSC	
k	0°	8°	0°	8°



## Part Marking Information



### NOTE:

Y—Code of productive year code(the last number of the year)

M —Code of productive month(for example: A means January, B means February...)

DD —Productive date(the number of the date)

NN —Lot number of wafer

### FOR EXCAMPLE:

8E1103

Means this product was produced in 2018-05-11 , and 03 is the lot code

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## Revision History

Revision	Major changes
1.2	Release for formal version 1.2

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