

TM08EH02TS

N+N-Channel Enhancement Mode MOSFET

General Description

- Low $R_{DS(ON)}$
- RoHS and Halogen-Free Compliant

Applications

- Load switch
- PWM

General Features

$V_{DS} = 20V$ $I_D = 8.0A$

$R_{DS(ON)} = 13.5m\Omega$ (typ) @ $V_{GS} = 4.5V$

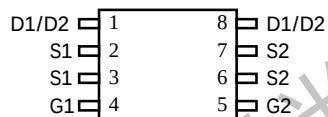
ESD protection

100% UIS Tested

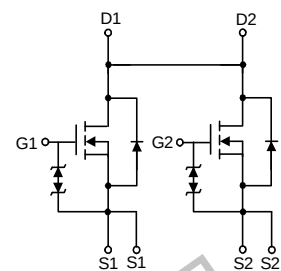
100% R_g Tested



TS:TSSOP-8L



Marking 8810 OR 08EH02



Absolute Maximum Ratings ($T_C = 25^\circ C$ unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	± 12	V
$I_D @ T_C = 25^\circ C$	Continuous Drain Current, $V_{GS} @ 4.5V$	8.0	A
$I_D @ T_C = 100^\circ C$	Continuous Drain Current, $V_{GS} @ 4.5V$	4.5	A
I_{DM}	Pulsed Drain Current	27	A
$P_D @ T_A = 25^\circ C$	Total Power Dissipation	0.83	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	---	151	$^\circ C/W$

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Electrical Characteristics (T_J=25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V, V _{GS} =0V,	-	-	1	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} = ±10V	-	-	±10	uA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	0.5	0.7	0.9	V
R _{DS(on)}	Static Drain-Source on-Resistance note2	V _{GS} =4.5V, I _D =4A	-	13.5	16	mΩ
		V _{GS} =2.5V, I _D =3A	-	17	24	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =10V, V _{GS} =0V, f=1.0MHz	-	645	-	pF
C _{oss}	Output Capacitance		-	103	-	pF
C _{rss}	Reverse Transfer Capacitance		-	90	-	pF
Q _g	Total Gate Charge	V _{DS} =10V, I _D =4.8A, V _{GS} =4.5V	-	8	-	nC
Q _{gs}	Gate-Source Charge		-	2.5	-	nC
Q _{gd}	Gate-Drain(“Miller”) Charge		-	3	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DS} =10V,R _L =1.5Ω, R _{GEN} =3Ω, V _{GS} =5V	-	0.5	-	ns
t _r	Turn-on Rise Time		-	1	-	ns
t _{d(off)}	Turn-off Delay Time		-	12	-	ns
t _f	Turn-off Fall Time		-	4	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	8.0	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	19	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S =4.8A	-	-	1.2	V

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Typical Performance Characteristics

Figure1: Output Characteristics

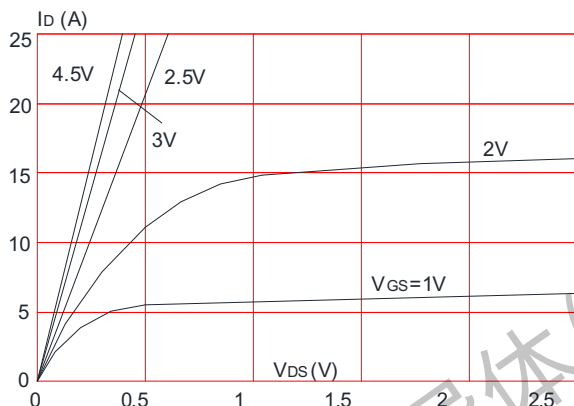


Figure 2: Typical Transfer Characteristics

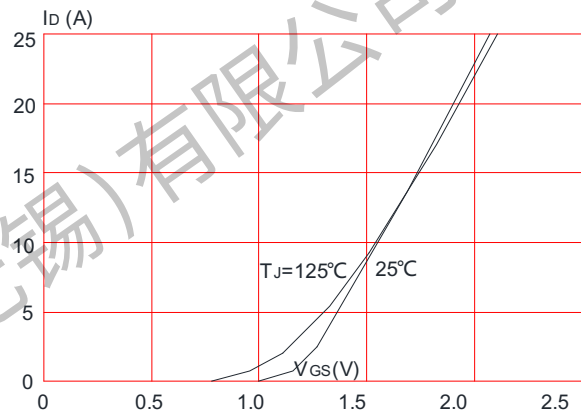


Figure 3: On-resistance vs. Drain Current

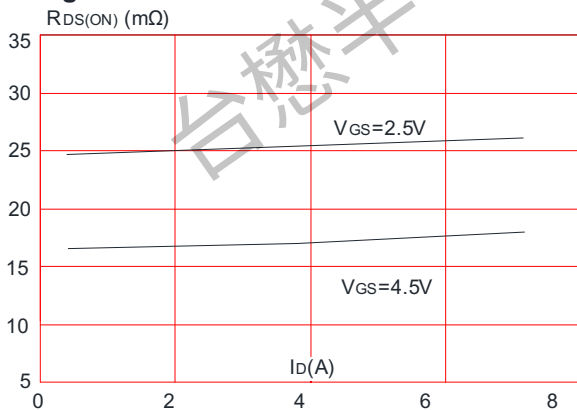


Figure 4: Body Diode Characteristics

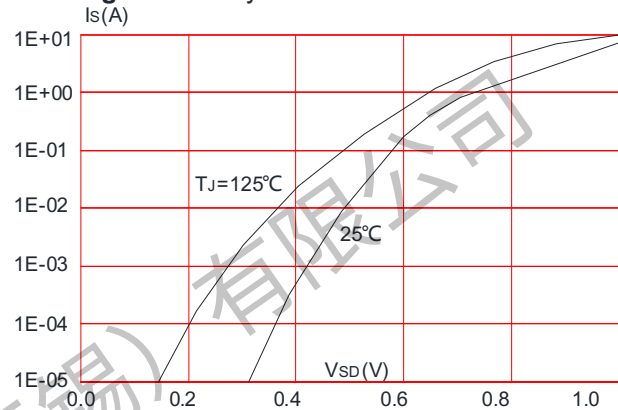


Figure 5: Gate Charge Characteristics

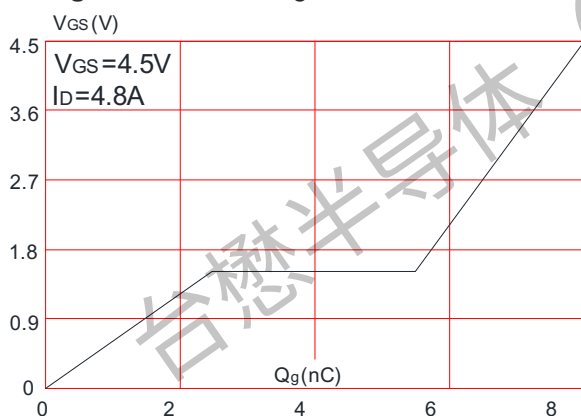
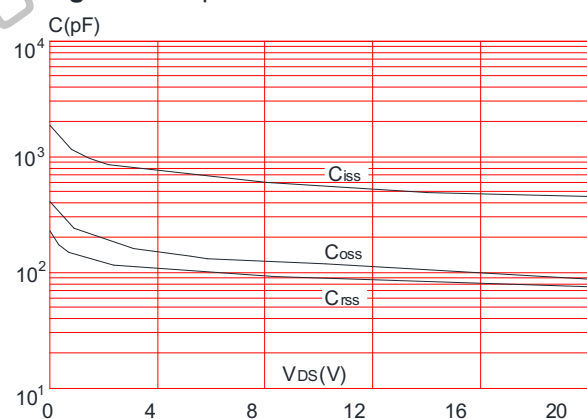


Figure 6: Capacitance Characteristics



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Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

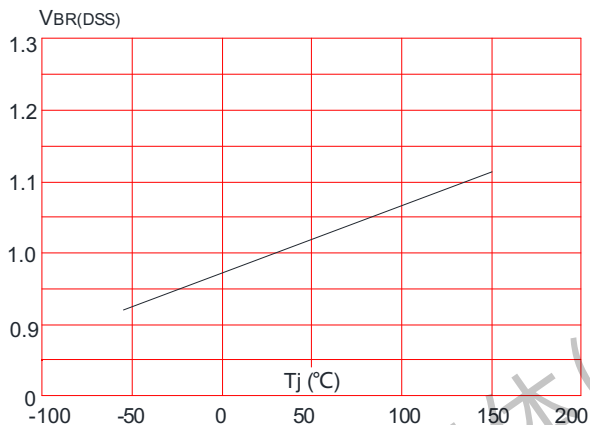


Figure 8: Normalized on Resistance vs. Junction Temperature

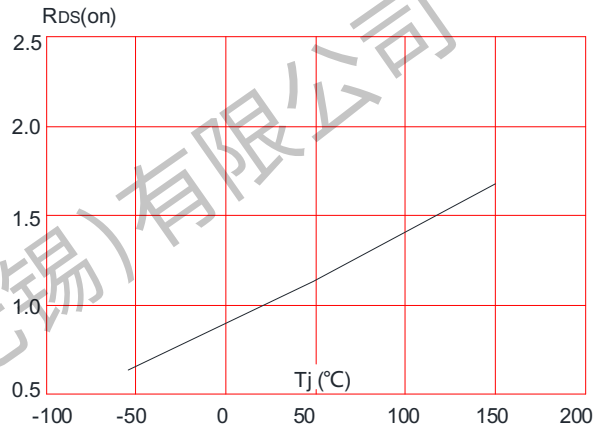


Figure 9: Maximum Safe Operating Area

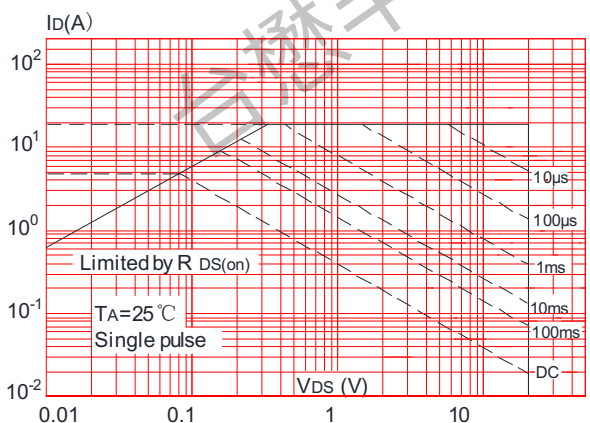


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

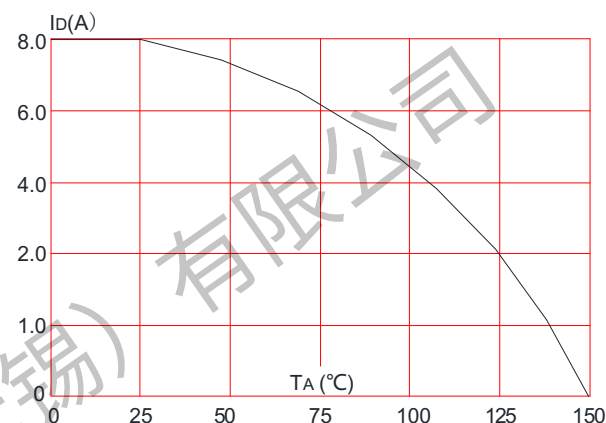
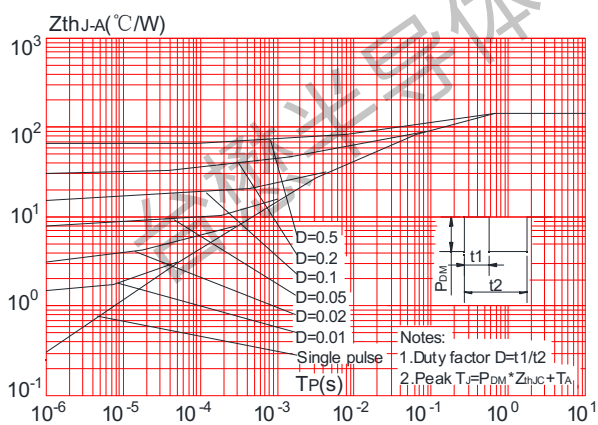


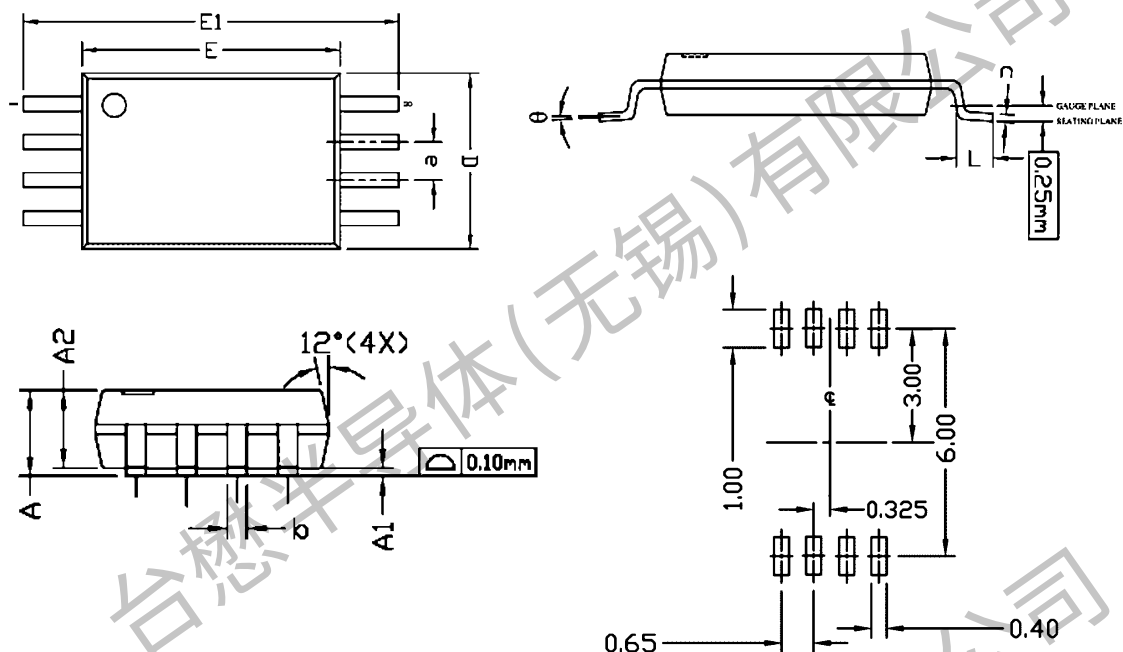
Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



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Package Mechanical Data: TSSOP-8L



Symbol	Common		
	mm		
	Mim	Nom	Max
A	/	/	1.20
A1	0.05	/	0.15
A2	0.80	1.00	1.05
b	0.19	/	0.30
c	0.09	/	3.45
D	2.90	3.00	3.1
E1	6.40BSC		
E	4.30	4.40	4.50
E	0.65BSC		
L	0.45	0.60	0.75
Φ	0°	0.48	8°

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Revision history:

Date	Rev	Description	Page
2023.04.21	23.04	Original	