
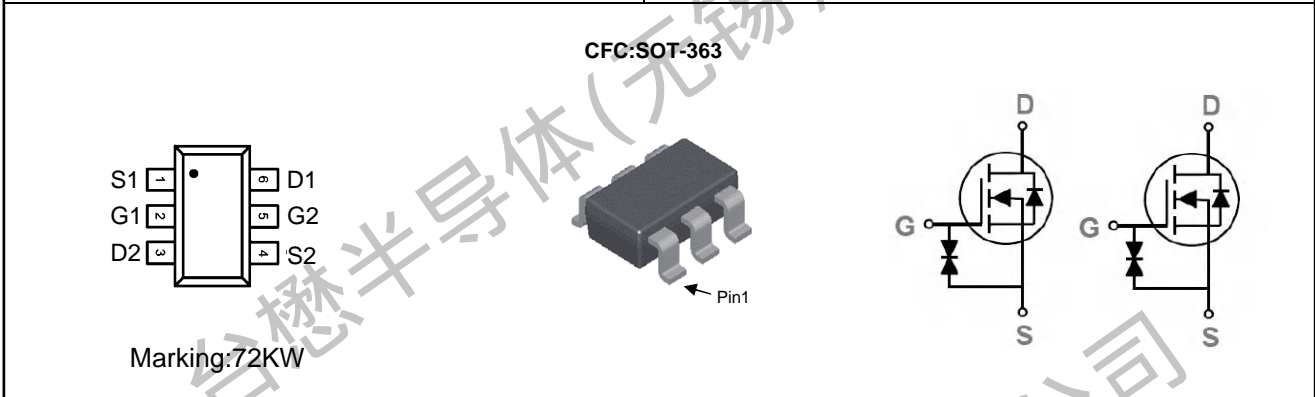


TM002EH06CFC

N+N-Channel Enhancement Mosfet

<p>General Description</p> <ul style="list-style-type: none"> • Low R_{DS(ON)} • RoHS and Halogen-Free Compliant <p>Applications</p> <ul style="list-style-type: none"> • Load switch • PWM 	<p>General Features</p> <p>V_{DS} = 60V I_D =0.23A</p> <p>R_{DS(ON)} =1600mΩ(Typ.) @ V_{GS}=10V</p> <p>ESD protection</p> <p>100% UIS Tested 100% R_g Tested</p> 
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Absolute Maximum Ratings (T_C=25°C unless otherwise noted)

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	60	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _A =25°C	Continuous Drain Current, V _{GS} @ 10V ¹	0.23	A
I _D @T _A =70°C	Continuous Drain Current, V _{GS} @ 10V ¹	0.15	A
I _{DM}	Pulsed Drain Current ²	0.8	A
P _D @T _A =25°C	Total Power Dissipation ³	0.38	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient	---	328	°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 = 10μA	60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} = 0V,	-	-	1	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} = ±20V	-	-	±10	uA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D =250uA	1	1.5	2	V
R _{DS(on)}	Static Drain-Source on-Resistance note2	V _{GS} =10V, I _D =0.3A	-	1600	2100	mΩ
		V _{GS} =4.5V, I _D =0.2A	-	1900	2700	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} = 25V, V _{GS} = 0V, f = 1.0MHz	-	28	-	pF
C _{oss}	Output Capacitance		-	11	-	pF
C _{rss}	Reverse Transfer Capacitance		-	4	-	pF
Q _g	Total Gate Charge	V _{DS} = 10V, I _D = 0.3A, V _{GS} = 4.5V	-	1.7	-	nC
Q _{gs}	Gate-Source Charge		-	0.3	-	nC
Q _{gd}	Gate-Drain("Miller") Charge		-	0.6	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} = 10V, I _D =0.2A, R _{GEN} = 10Ω, V _{GS} =10V,	-	2	-	ns
t _r	Turn-on Rise Time		-	15	-	ns
t _{d(off)}	Turn-off Delay Time		-	7	-	ns
t _f	Turn-off Fall Time		-	20	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	0.23	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	0.8	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} = 0V, I _S =0.2A	-	-	1.2	V

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%



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Typical Performance Characteristics

Figure 1: Output Characteristics

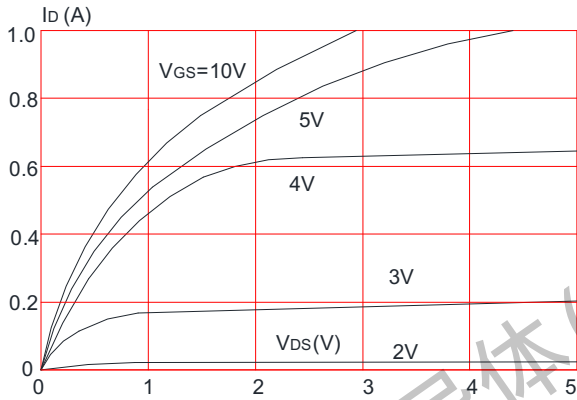


Figure 2: Typical Transfer Characteristics

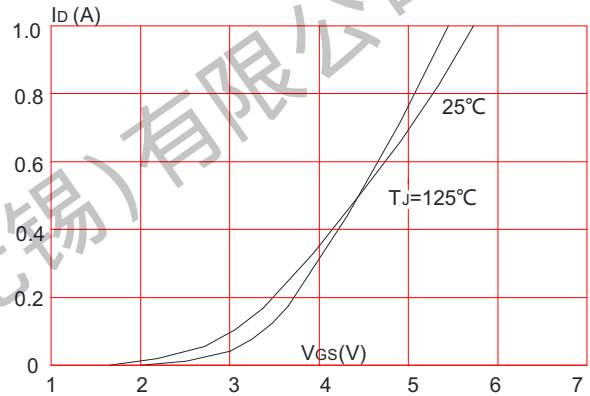


Figure 3: On-resistance vs. Drain Current

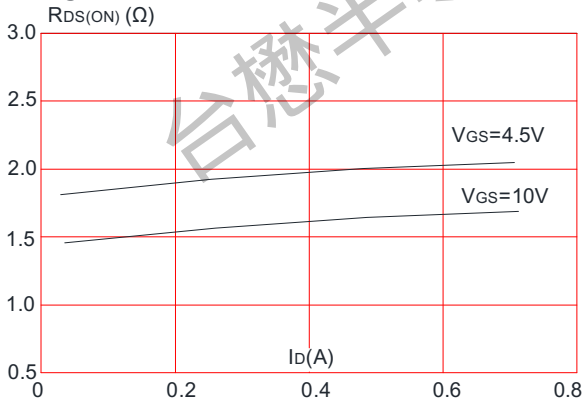


Figure 4: Body Diode Characteristics

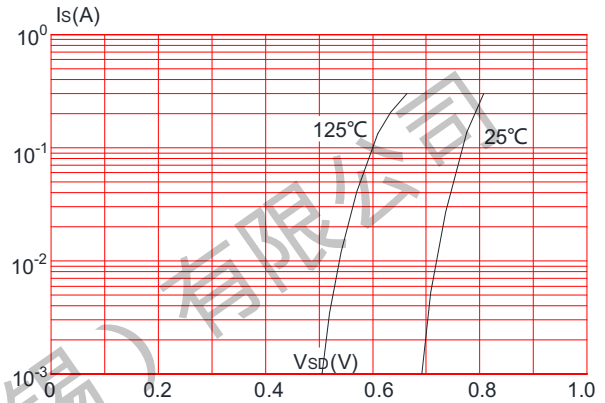


Figure 5: Gate Charge Characteristics

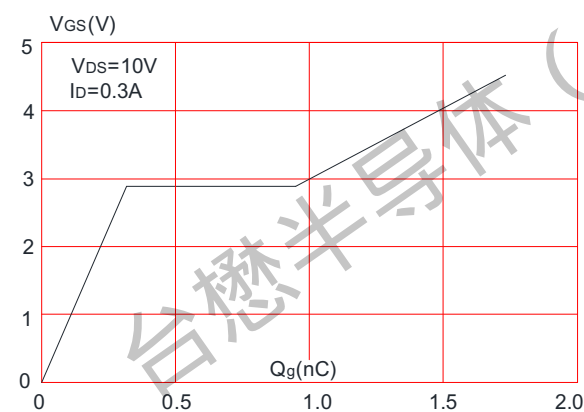
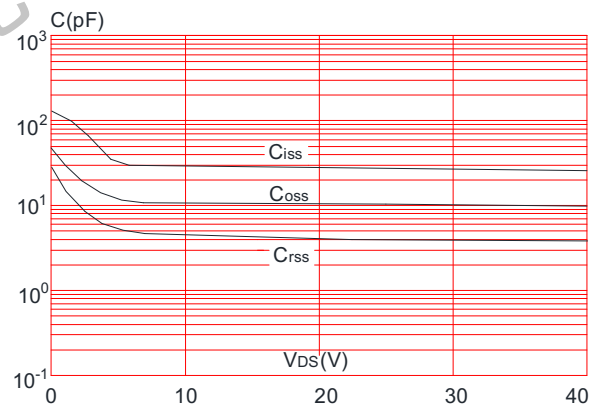


Figure 6: Capacitance Characteristics



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Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

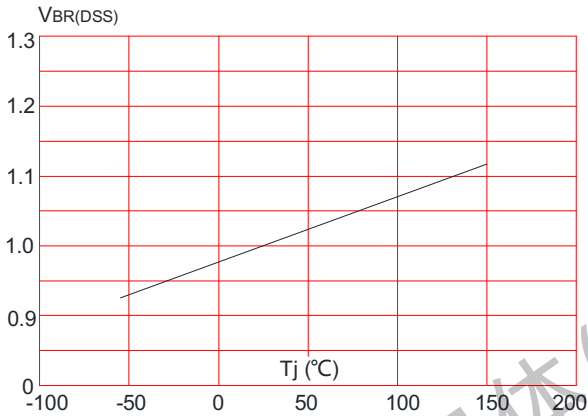


Figure 8: Normalized on Resistance vs. Junction Temperature

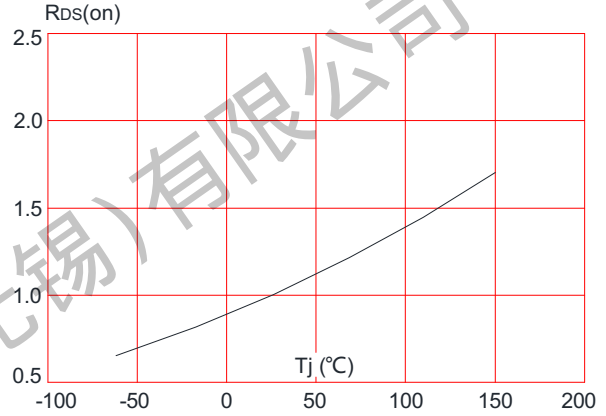


Figure 9: Maximum Safe Operating Area

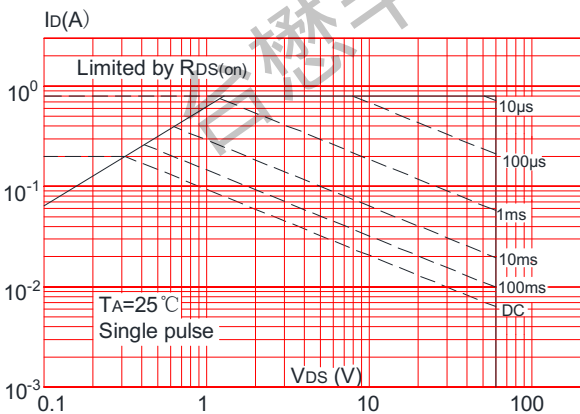


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

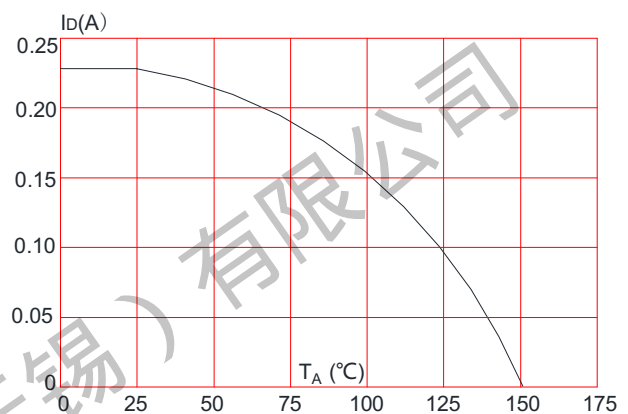
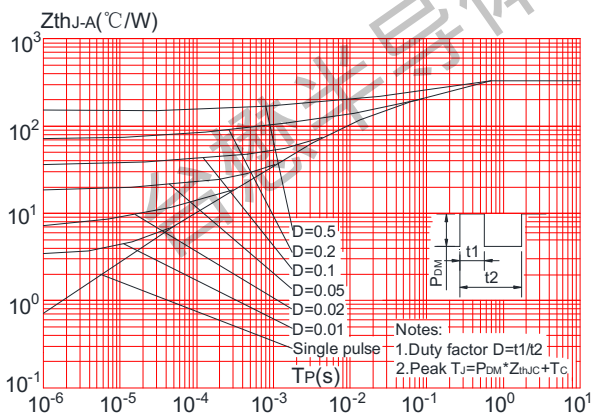


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

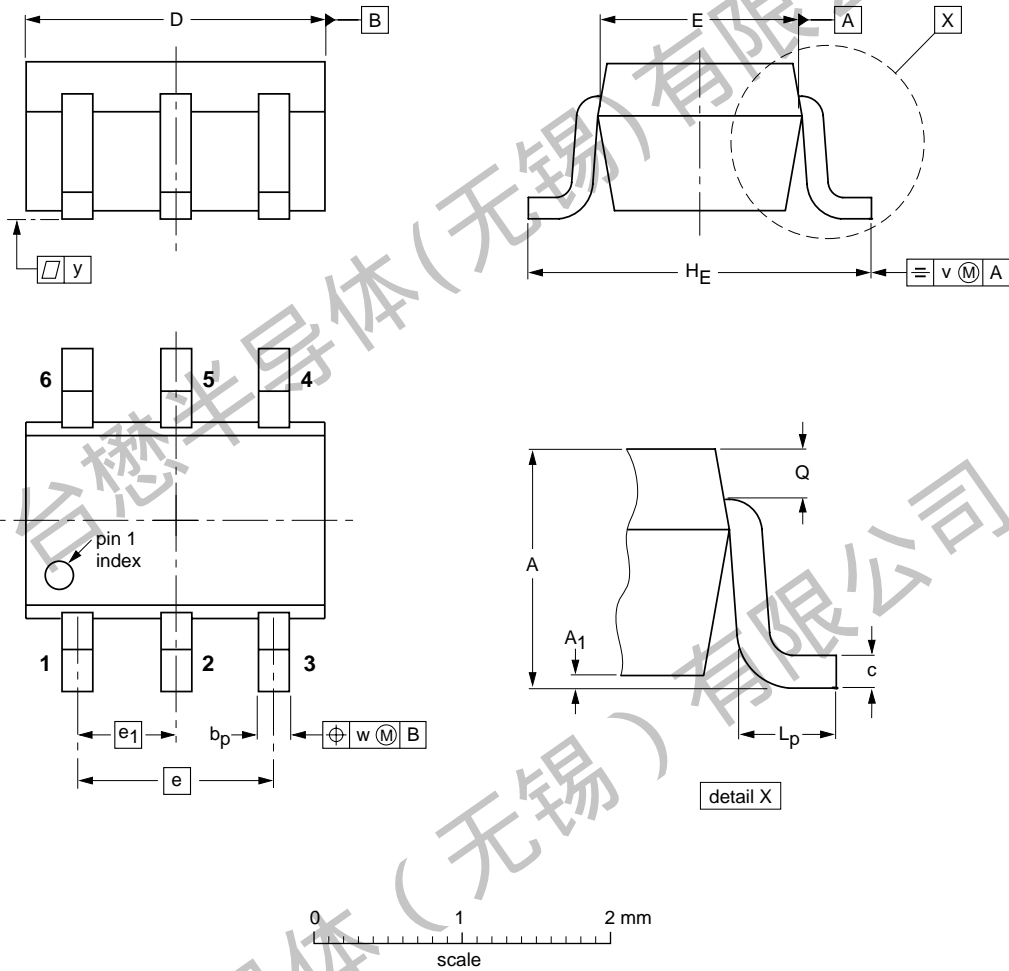




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Package Mechanical Data:SOT-363



DIMENSIONS (mm are the original dimensions)

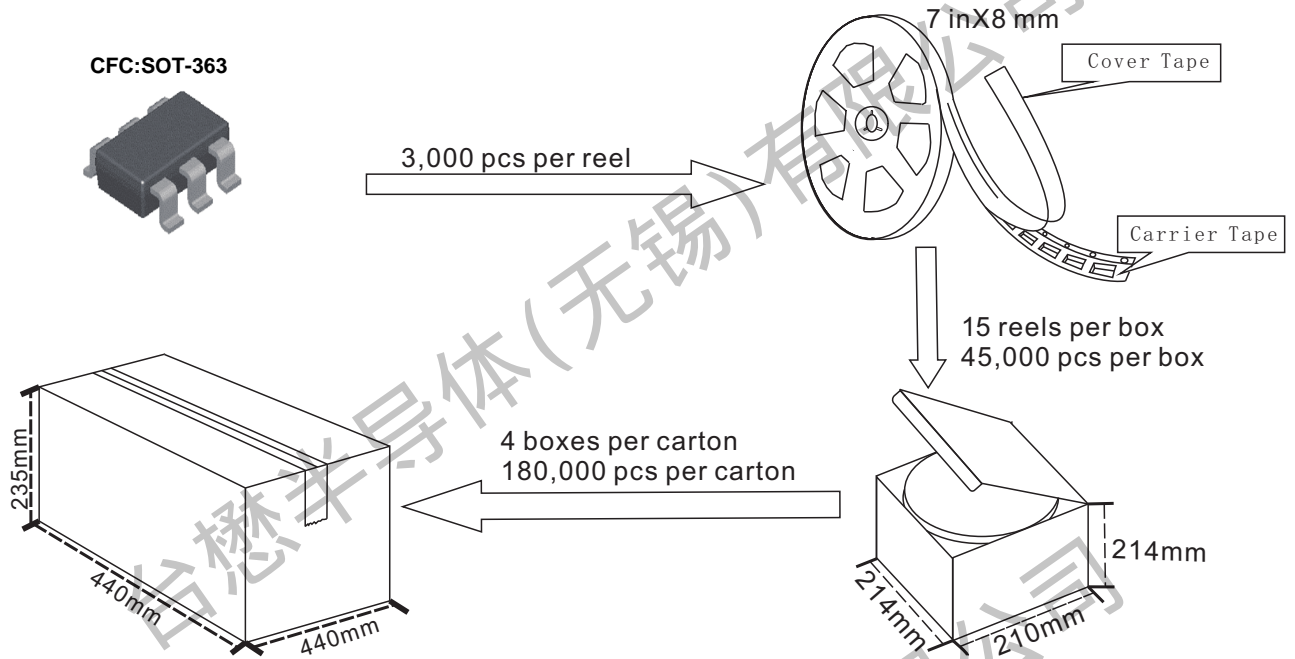
UNIT	A	A ₁ max	b _p	c	D	E	e	e ₁	H _E	L _p	Q	v	w	y
mm	1.1 0.8	0.1	0.30 0.20	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.25 0.15	0.2	0.2	0.1

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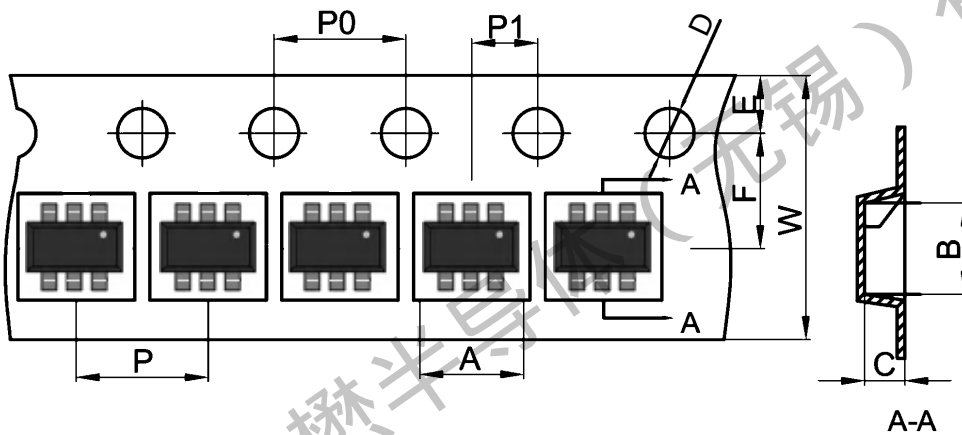
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SOT-363 Packing

1. The method of packaging and dimension are shown as below figure. (Dimension in mm)



SOT-363 Embossed Carrier Tape



Dimensions are in millimeter

Pkg type	A	B	C	D	E	F	P0	P	P1	W
SOT-363	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00



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Revision history:

Date	Rev	Description	Page
2023.04.07	23.04	Original	