

TM35H02DF

N+N-Channel Enhancement Mosfet

General Description

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

Applications

- Load switch
- PWM

Product Summary

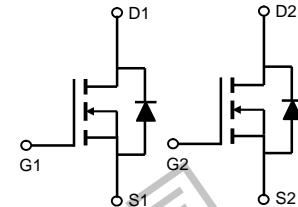
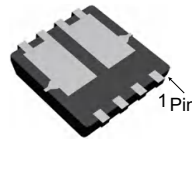
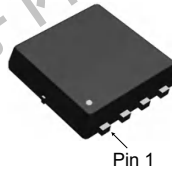
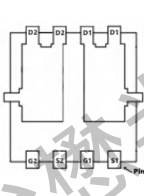
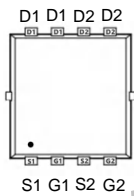
V_{DS} = 20V I_D =35A

R_{DS(ON)} = 4.3mΩ(Typ.) @ V_{GS}=4.5V

100% UIS Tested
100% R_g Tested



DF:DFN3x3-8L



Marking:35H02

Absolute Maximum Ratings (T_A=25°C Unless Otherwise Noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	20	V
Gate-Source Voltage	V _{GS}	±12	V
Continuous Drain Current	I _D	35	A
Pulsed Drain Current (note)	I _{DM}	120	A
Avalanche Energy L=0.1mH	E _{AS}	54	mJ
Thermal Resistance from Junction to Ambient (note)	R _{θJA}	34.7	°C/W
Junction Temperature	T _J	175	°C
Storage Temperature	T _{STG}	-55~+175	°C

TM35H02DF

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

Parameter	Symbol	Condition	Min	Typ	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	-	-	±10	μA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.5	0.7	0.9	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =8A		4.3	5.4	mΩ
		V _{GS} =2.5V, I _D =6A		5.5	6.5	mΩ
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =6A	25	-	-	S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, F=1.0MHz	-	2530	-	pF
Output Capacitance	C _{oss}		-	610	-	pF
Reverse Transfer Capacitance	C _{rss}		-	580	-	pF
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =10V, I _D =2A, R _L =1Ω, V _{GS} =4.5V, R _G =3Ω	-	20	-	nS
Turn-on Rise Time	t _r		-	40	-	nS
Turn-Off Delay Time	t _{d(off)}		-	72	-	nS
Turn-Off Fall Time	t _f		-	16	-	nS
Total Gate Charge	Q _g	V _{DS} =10V, I _D =8A, V _{GS} =4.5V	-	35	-	nC
Gate-Source Charge	Q _{gs}		-	5	-	nC
Gate-Drain Charge	Q _{gd}		-	9	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =1A	-	-	1.2	V
Diode Forward Current	I _S		-	-	35	A

TM35H02DF

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Typical Electrical and Thermal Characteristics

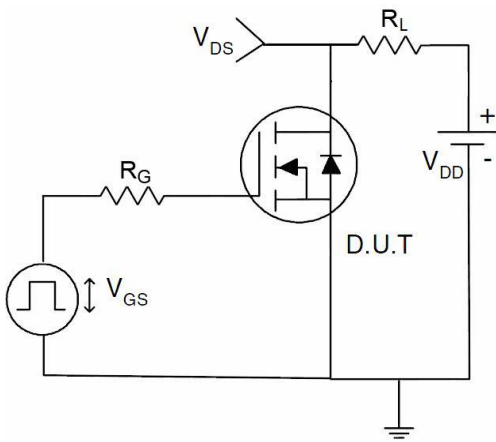


Figure 1 Switching Test Circuit

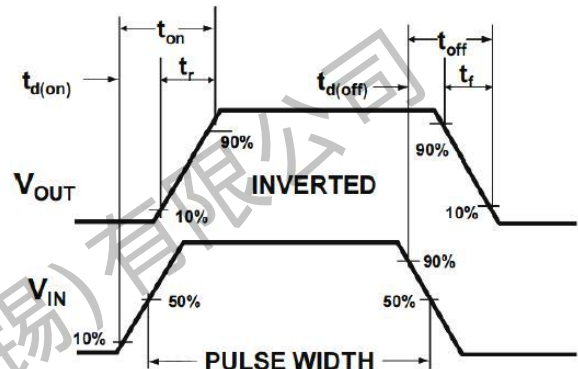


Figure 2 Switching Waveform

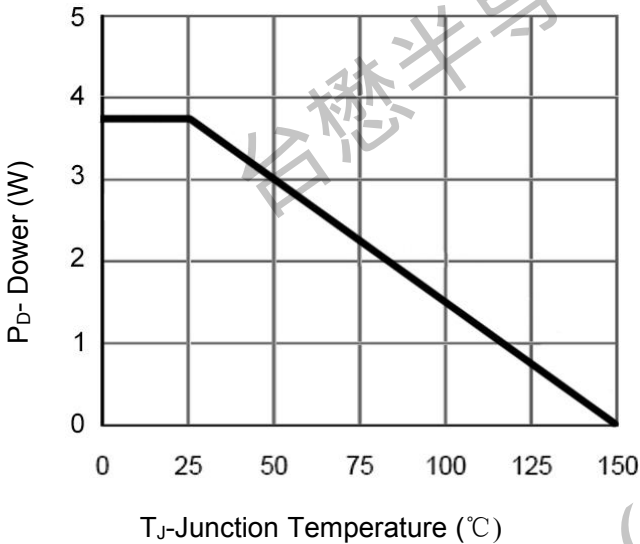


Figure 3 Power Dissipation

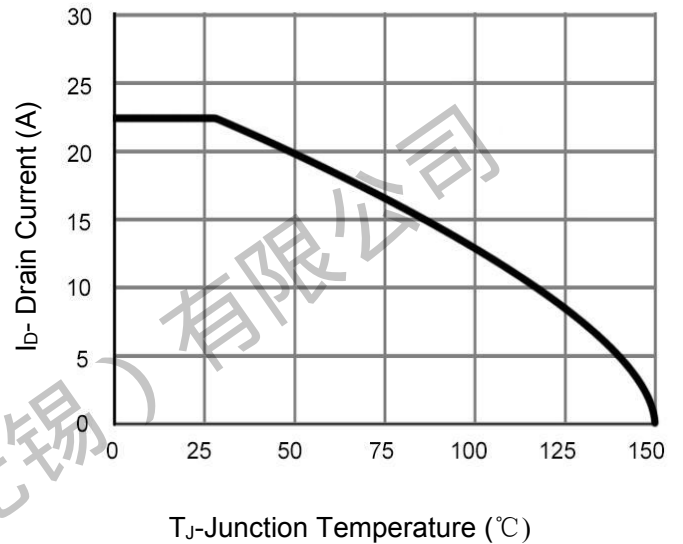


Figure 4 Drain Current

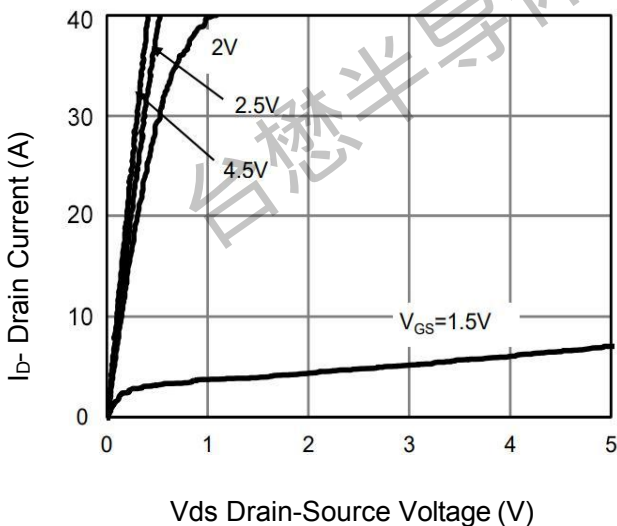


Figure 5 Output Characteristics

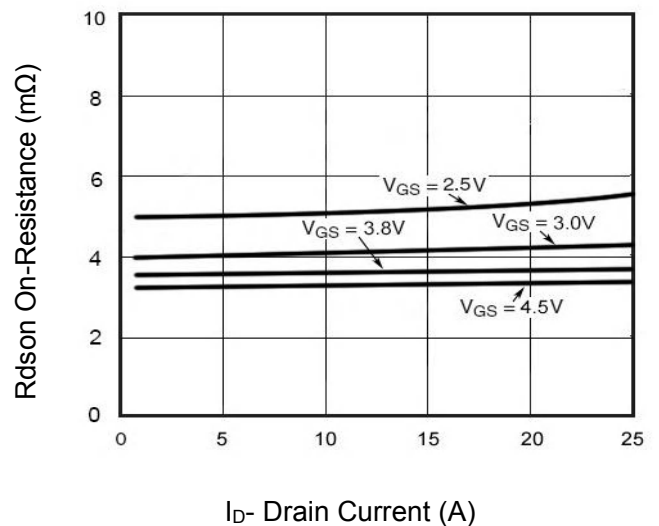


Figure 6 R_{dson} vs Drain Current



TM35H02DF

N+N-Channel Enhancement Mosfet

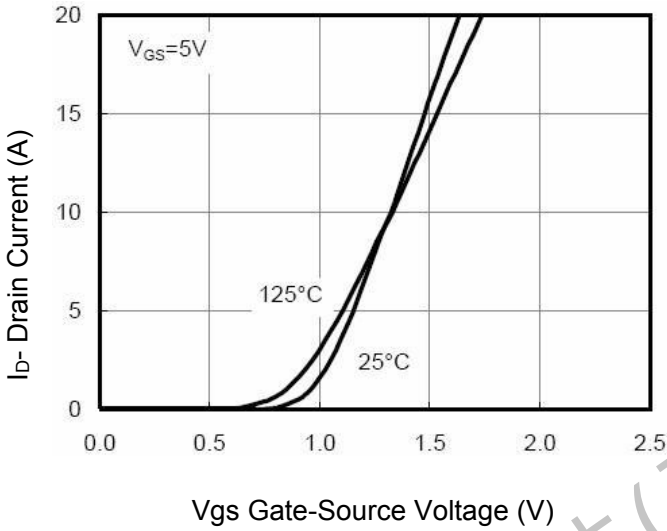


Figure 7 Transfer Characteristics

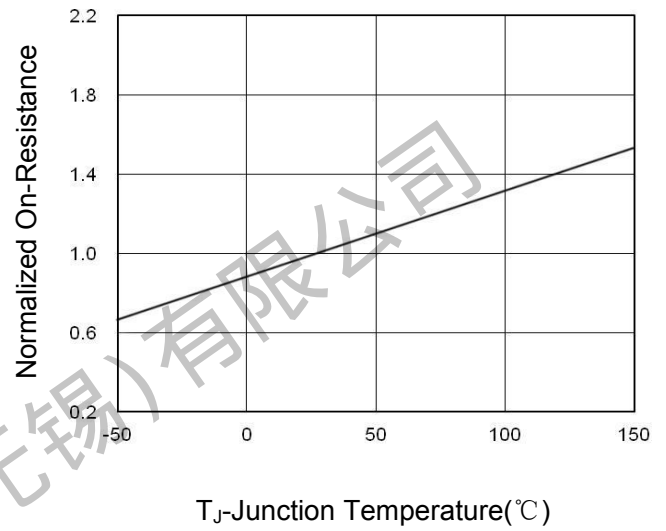


Figure 8 Rdson vs Junction Temperature

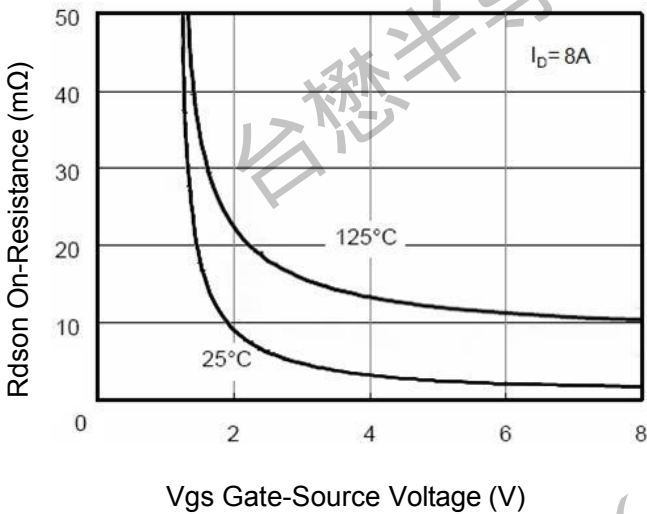


Figure 9 Rdson vs Vgs

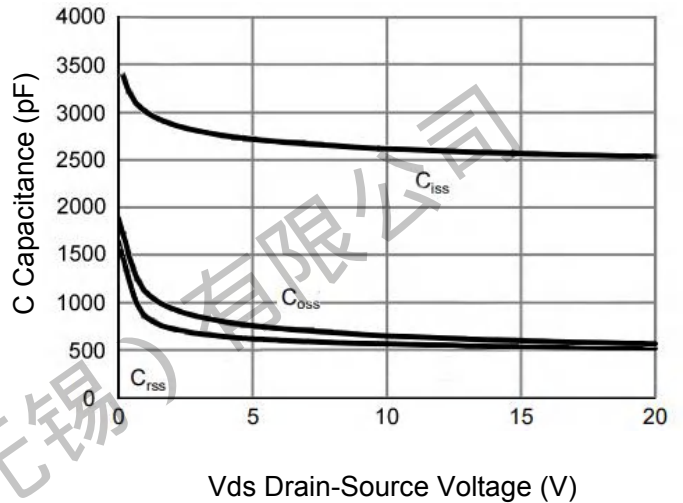


Figure 10 Capacitance vs Vds

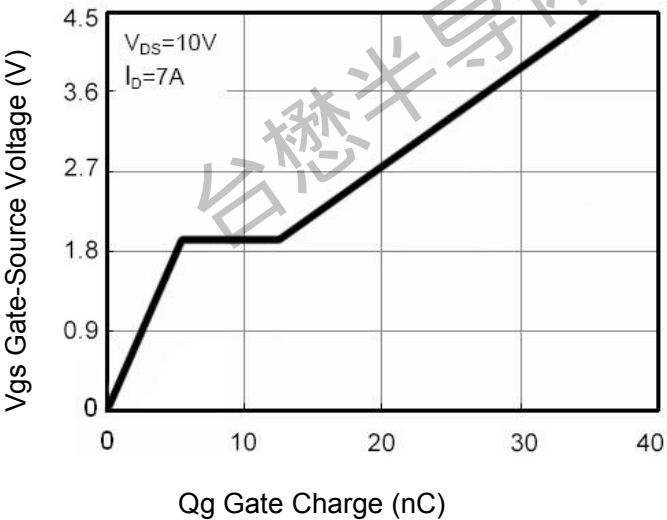


Figure 11 Gate Charge

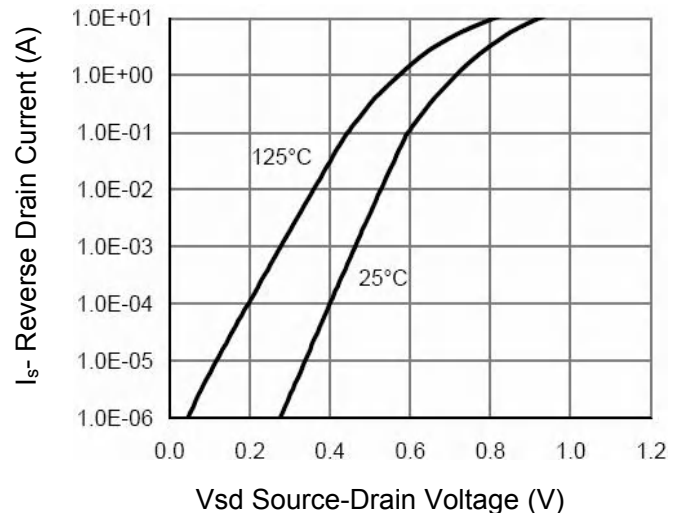


Figure 12 Source- Drain Diode Forward

TM35H02DF

N+N-Channel Enhancement Mosfet

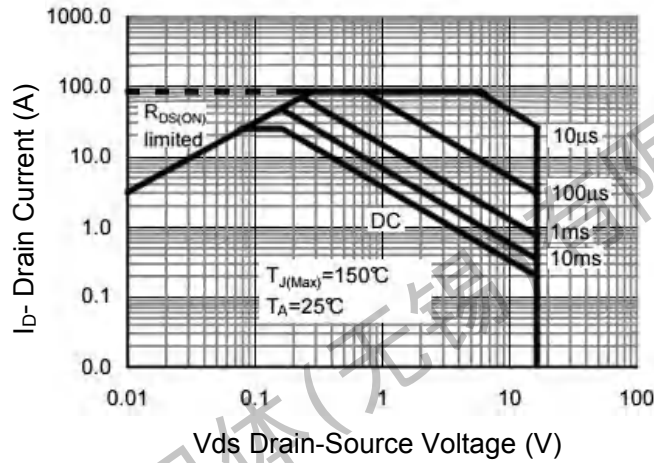


Figure 13 Safe Operation Area

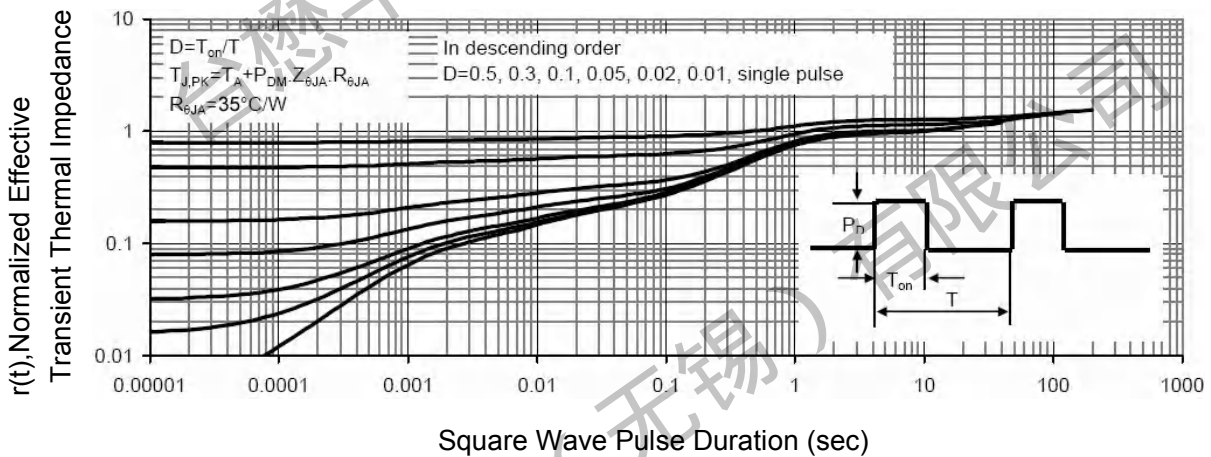


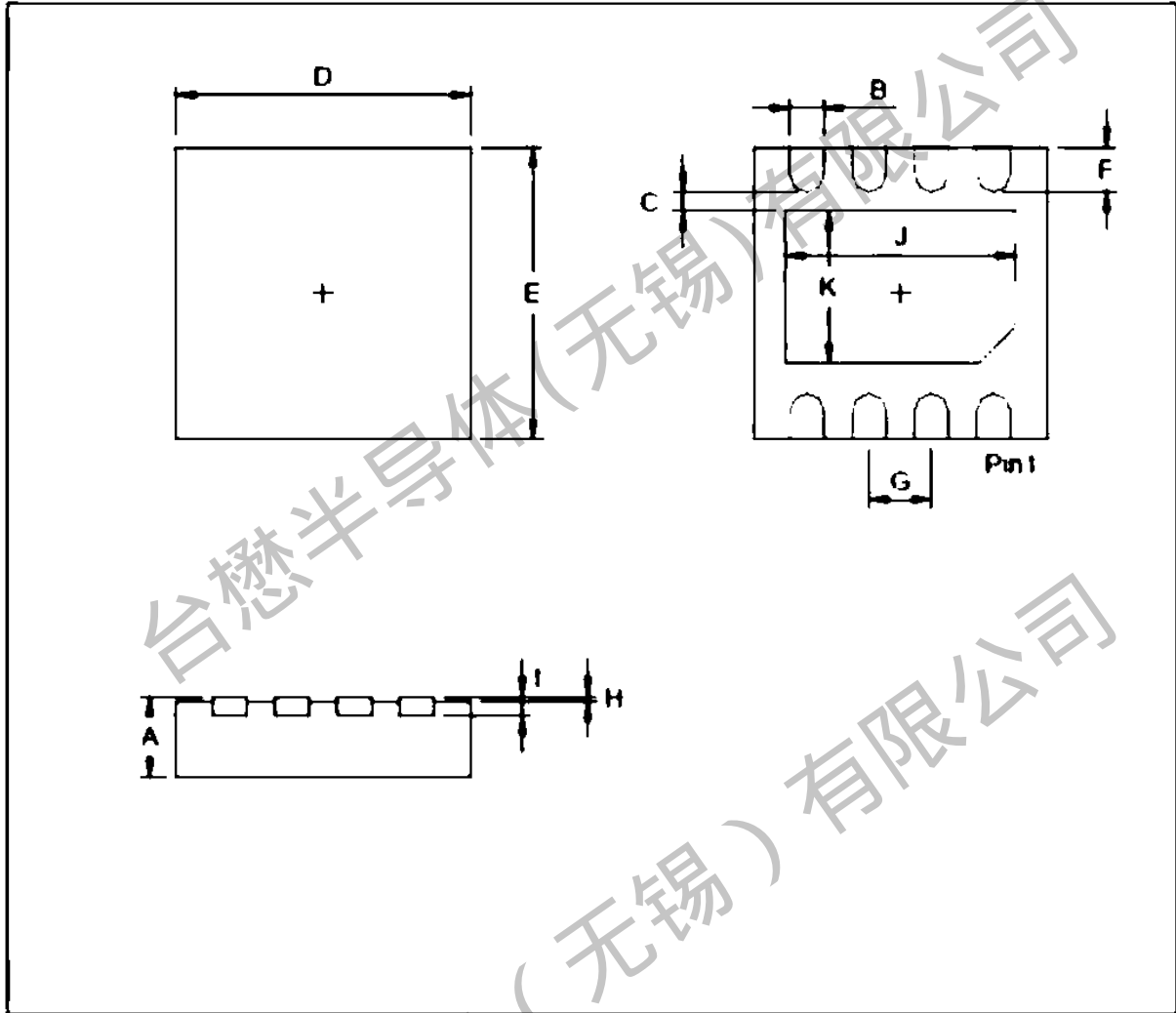
Figure 14 Normalized Maximum Transient Thermal Impedance



TM35H02DF

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Package Mechanical Data:DFN3x3-8L

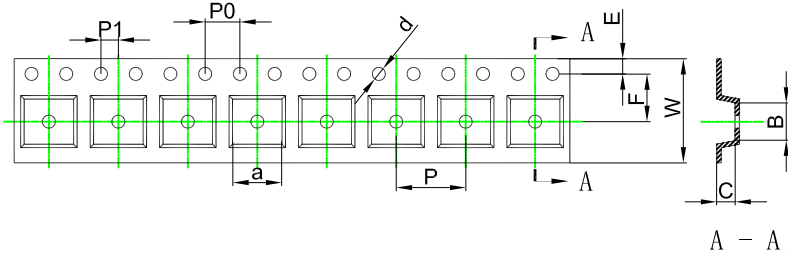


Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	0.7		0.8	I		0.203	
B	0.25		0.35	J	2.2		2.4
C	0.2			K	1.4		1.6
D	2.924		3.076				
E	2.924		3.076				
F	0.324		0.476				
G		0.65					
H	0		0.05				

TM35H02DF

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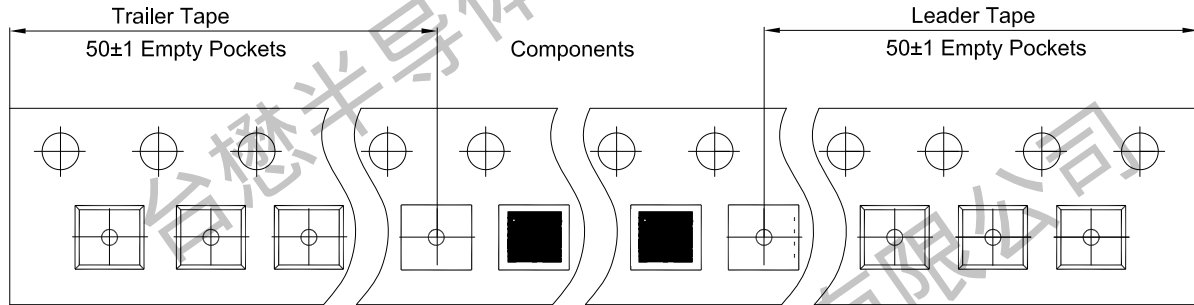
PDFN3x3-8L Embossed Carrier Tape



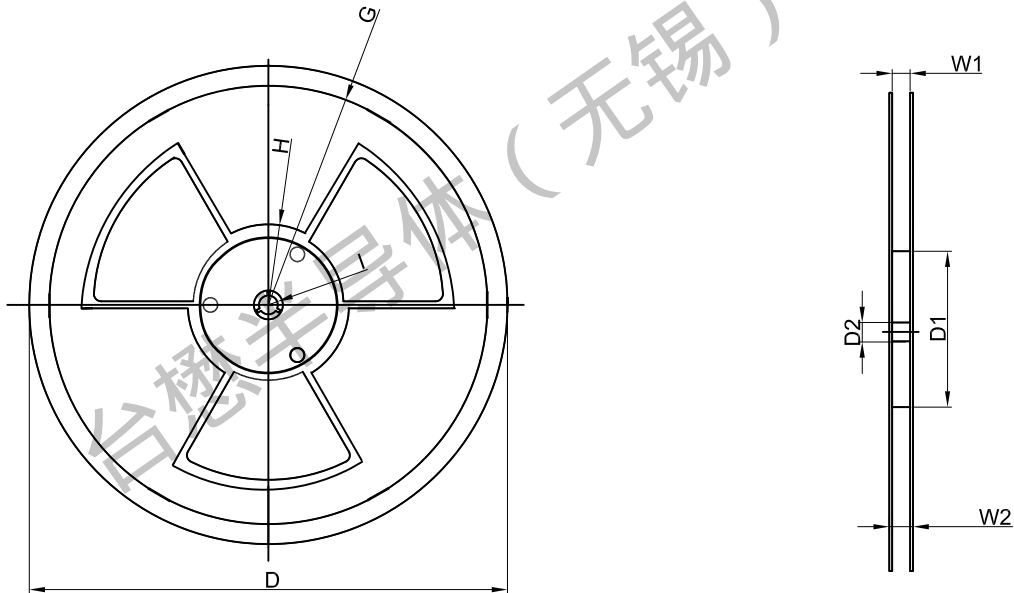
Packaging Description:
SOP-8L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 2,500 units per 13" or 33cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).
ALL DIM IN mm

Dimensions are in millimeter										
Pkg type	a	B	C	d	E	F	P0	P	P1	W
PDFN3x3-8L	6.40	5.40	2.10	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

PDFN3x3-8L Tape Leader and Trailer



PDFN3x3-8L Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
13" Dia	Ø330.00	100.00	13.00	R135.00	R55.00	R6.50	12.00	14.00

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
5,000 pcs	13 inch	10,000 pcs	370×355×52	50,000 pcs	400×360×368	

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Revision history:

Date	Rev	Description	Page
2024.06.07	24.06	Original	