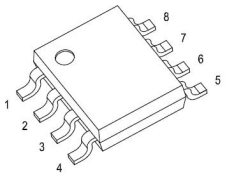
30V N-Channel MOSFET

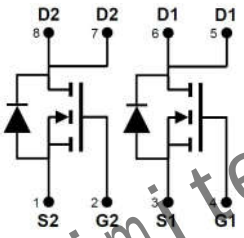
1.Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	9mΩ@10V	9.5A
	13mΩ@4.5V	

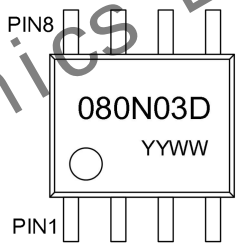
SOP-8



Schematic diagram



Marking



080N03D: Device Code
YY : Year Code
WW : Week Code

2.Features

- V_{DS} 30V
- I_D 9.5A
- $R_{DS(ON)}$(at V_{GS}=10V) ＜12 mohm
- $R_{DS(ON)}$(at V_{GS}=4.5V) ＜17 mohm
- High density cell design for ultra low Rdson
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation

3.Applications

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

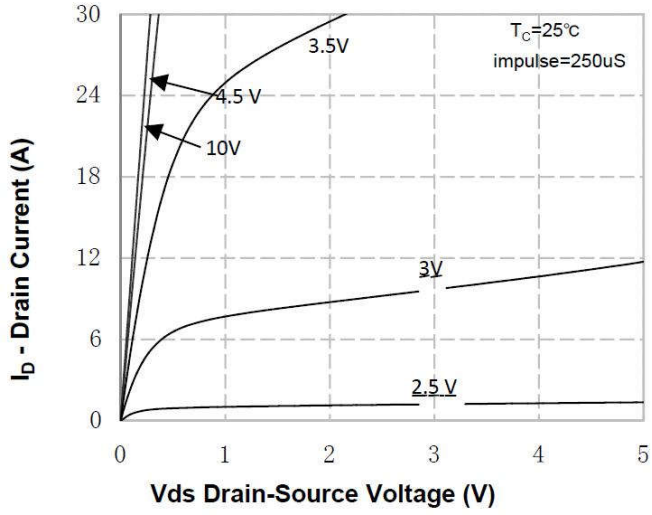
4.Absolute Maximum rating（T_A = 25℃ unless otherwise noted）

Parameter		Symbol	Value	Unit
Drain-source Voltage		V_{DS}	30	V
Gate-source Voltage		V_{GS}	±20	V
Drain Current	T_A=25℃	I_D	9.5	A
	T_A=70℃		7.5	
Pulsed Drain Current		I_{DM}	40	A
Total Power Dissipation	T_A=25℃	P_D	2.5	W
	T_A=70℃		1.6	W
Thermal Resistance Junction-to-Ambient		$R_{\theta JA}$	50	℃/ W
Junction and Storage Temperature Range		T_J ,T_{STG}	-55～+150	℃

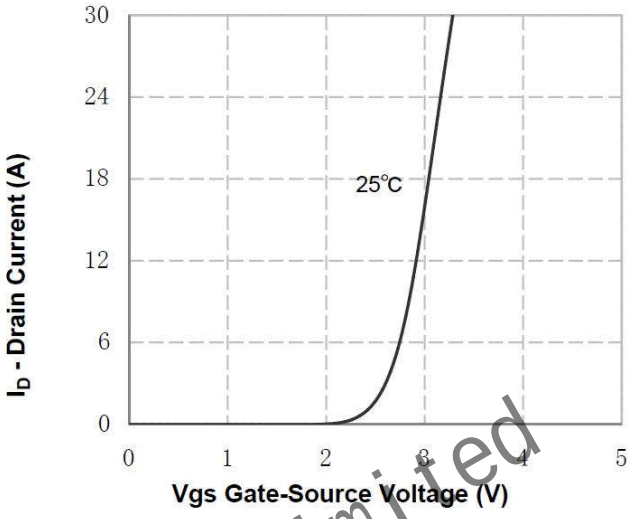
5.Electrical Characteristics（TA = 25℃ unless otherwise noted）

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 30V, V_{GS} = 0V			1	μA
Gate - Body Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.0	1.5	2.5	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =8A		9	12	mΩ
		V_{GS} =4.5V, I_D =6A		13	17	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} =15V, V_{GS} =0V, f =1MHz		1060		pF
Output Capacitance	C_{oss}			122		
Reverse Transfer Capacitance	C_{rss}			102		
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} =15V, V_{GS} =5V, I_D =10A		21		nC
Gate-source Charge	Q_{gs}			3		
Gate-drain Charge	Q_{gd}			5		
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=15V, V_{GS}=10V , R_L=1.6Ω, I_D=30A		4		ns
Turn-on Rise Time	t_r			2		
Turn-off Delay Time	$t_{d(off)}$			13		
Turn-off Fall Time	t_f			7		
Source - Drain Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}= 0V, I_S= 10A			1.2	V

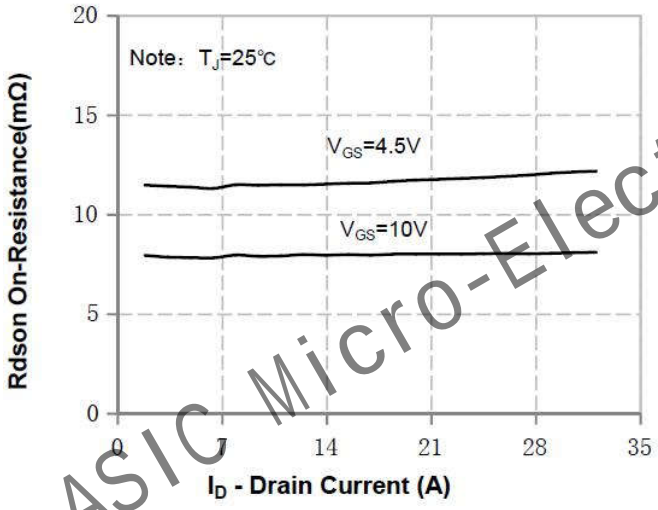
6.Typical Characteristic



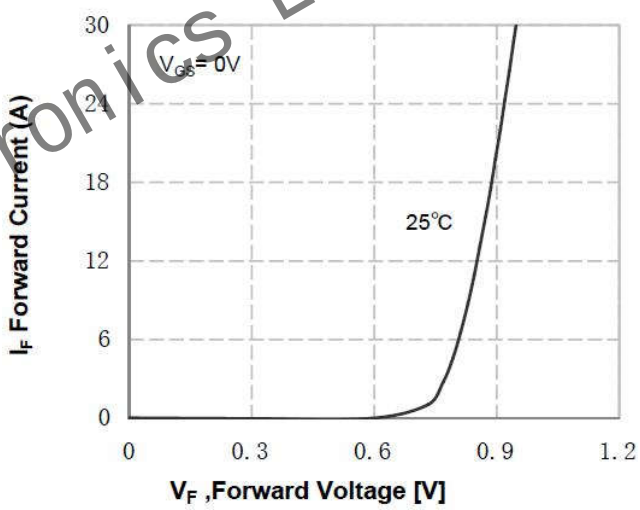
Output Characteristics



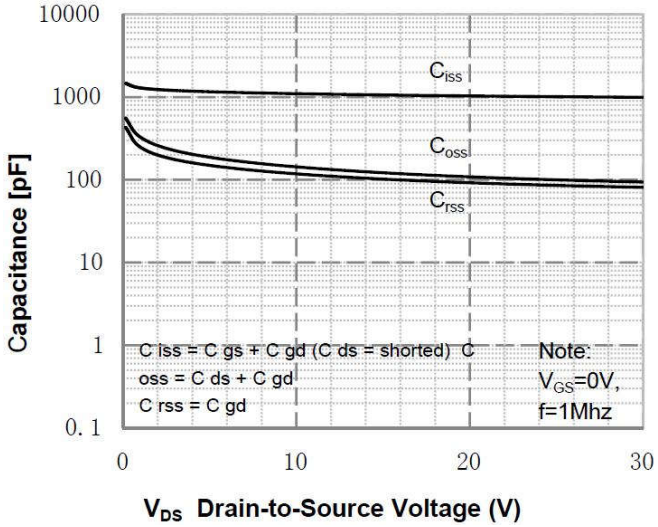
Transfer Characteristics



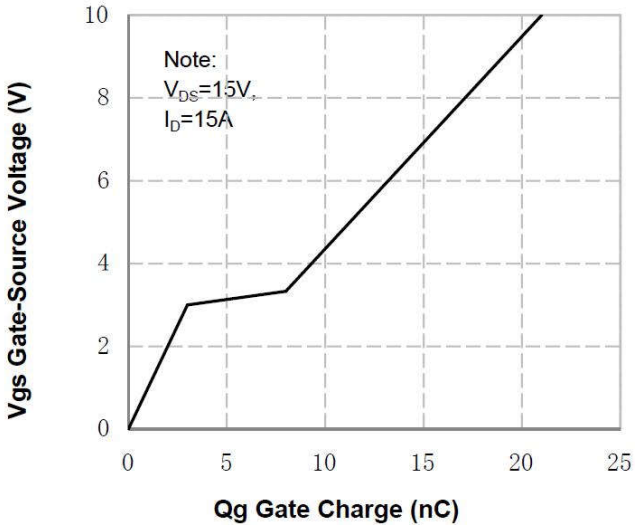
$R_{DS(ON)}$ vs I_D



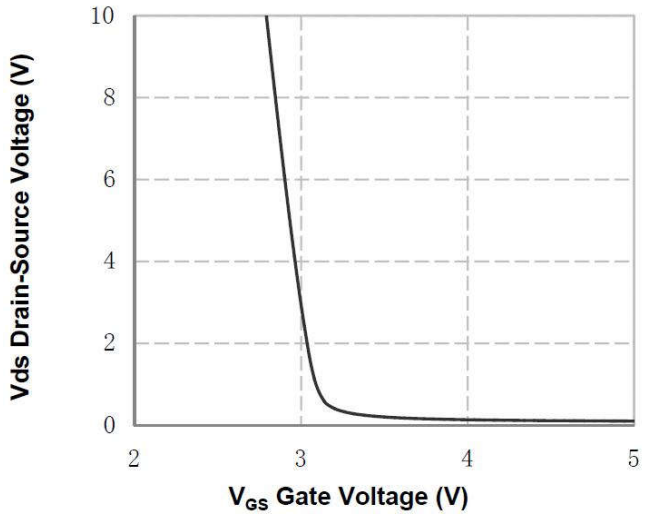
Body Diode Characteristics



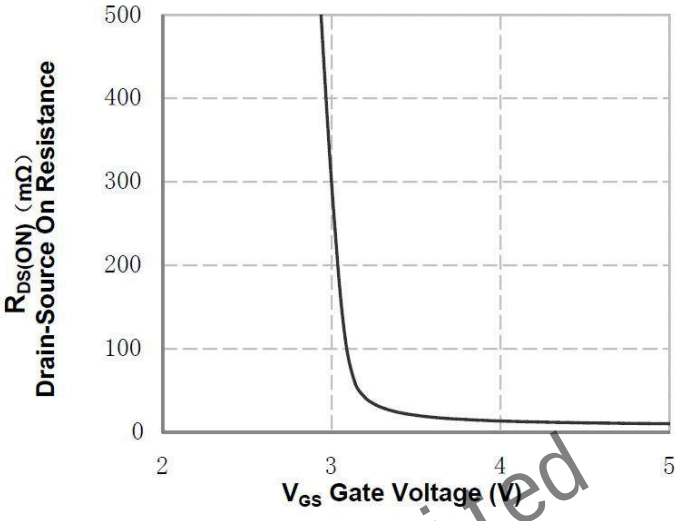
Capacitance Characteristics



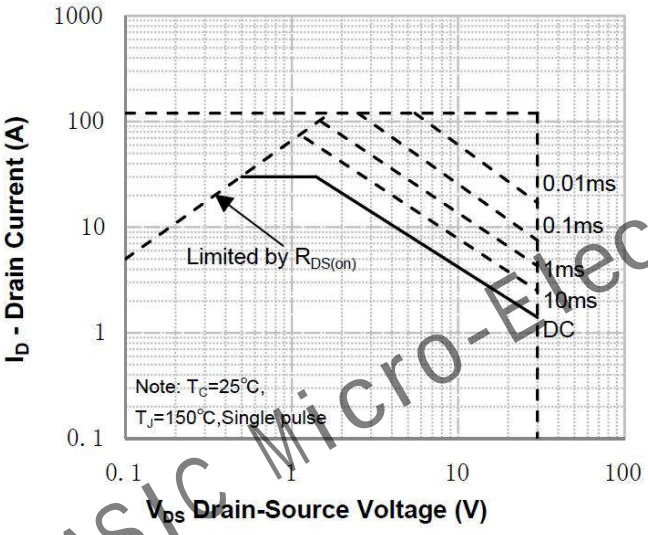
Gate Charge Characteristics



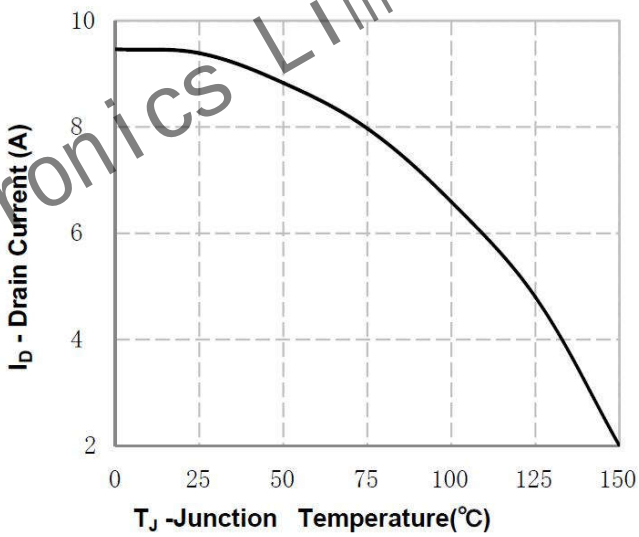
Breakdown Voltage Variation vs Gate-Voltage



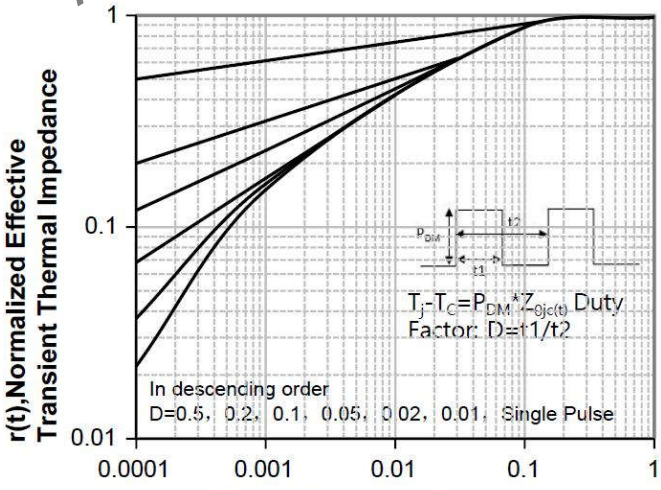
On-Resistance Variation vs Gate Voltage



Maximum Safe Operating Area

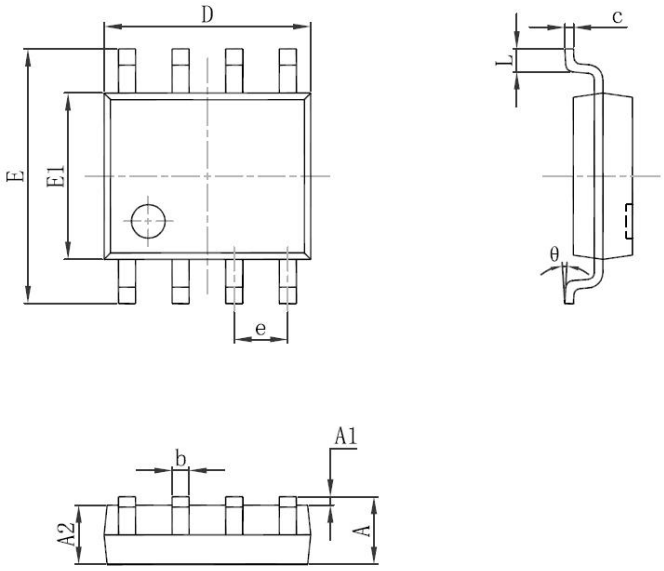


Maximum Continuous Drain Current vs. Case Temperature



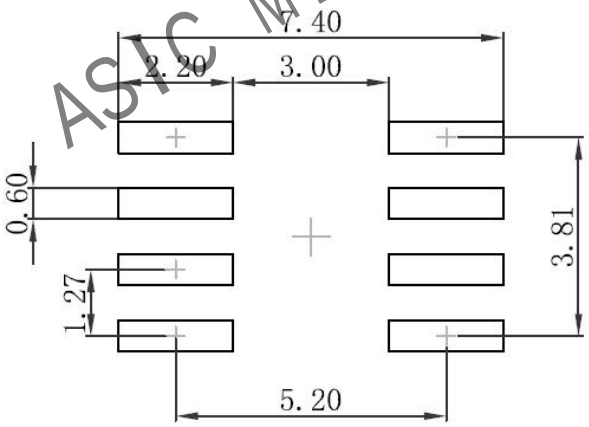
Maximum Effective Transient Thermal Impedance, Junction-to-Case

7.Dimension



Symbol	Dimensions		Dimensions	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1. 270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

8.Recommended Land Pattern

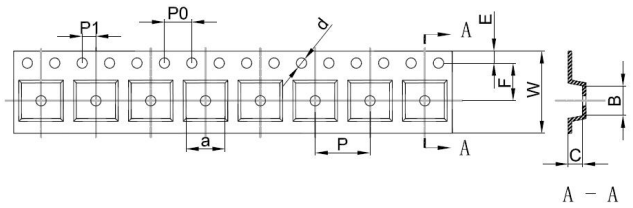


Note:

1. Controlling dimension: in millimeters
2. General tolerance: ±0.05mm
3. The pad layout is for reference only
4. Unit: mm

9.Tape and Reel

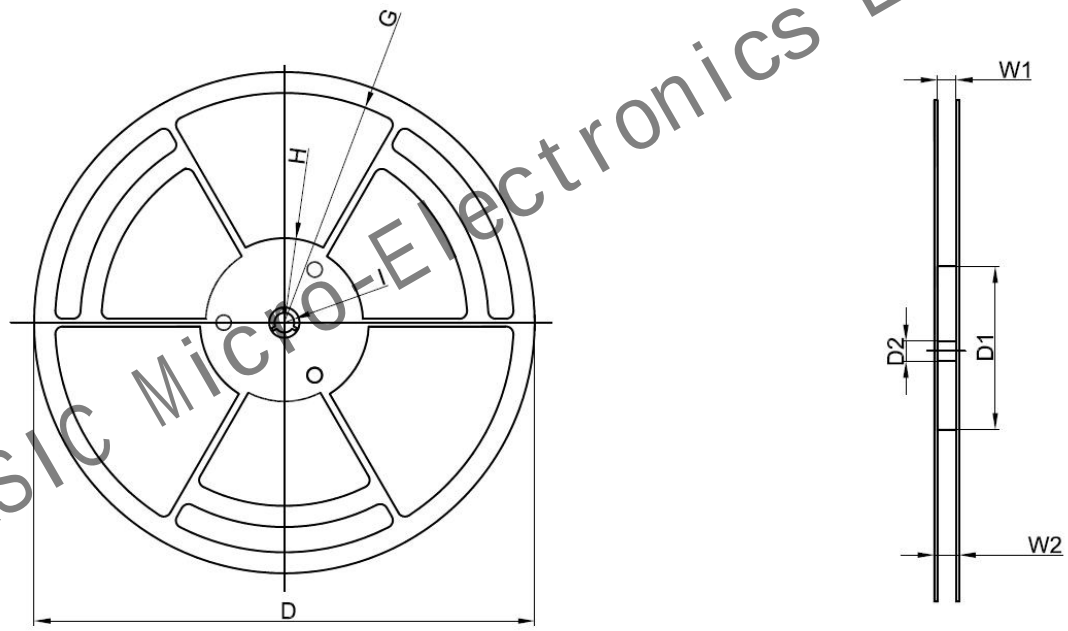
SOP-8 Embossed Carrier Tape



Packaging Description:
SOP8 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
SOP-8	6.40	5.40	2.10	Φ1.50	1.75	5.50	4.00	8.00	2.00	12.00

SOP-8 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
13``Dia	Φ330.00	100.00	13.00	R151.00	R56.00	R6.50	12.40	17.60

Reel	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
4,000pcs	13 inch	8,000pcs	336×336×48	64,000pcs	445×355×365	

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