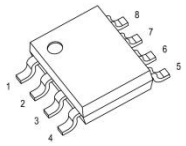
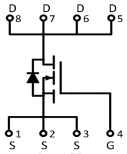
30V N-Channel MOSFET

Product Summary

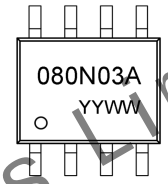
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	8mΩ@10V	11.5A
	12mΩ@4.5V	



SOP8



Circuit diagram



080N03A	: Device Code
YY	: Year Code
WW	: Week Code

Marking (Top View)

Features

- Very Low On-resistance $R_{DS(ON)}$
- LowCrss
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability

Applications

- PWM Application
- Load Switch
- Power Management

Order information

Device	Package	Shipping
AN080N03EL0	SOP8	4000/Tape&Reel

Absolute maximum ratings

Parameter		Symbol	Value	Units
Drain-Source Voltage		V_{DSS}	30	V
Drain Current	T_C = 25℃	I_D	11.5	A
	T_C = 70℃		9	A
Drain Current - Pulsed[1]		I_{DM}	45	A
Gate-Source Voltage		V_{GSS}	±20	V
Single Pulsed Avalanche Energy[2]		E_{AS}	70	mJ
Power Dissipation	T_A = 25℃	P_D	2.5	W
Thermal Resistance, Junction-to-Ambient		$R_{\theta JA}$	50	℃/W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	℃
Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds		T_L	300	℃

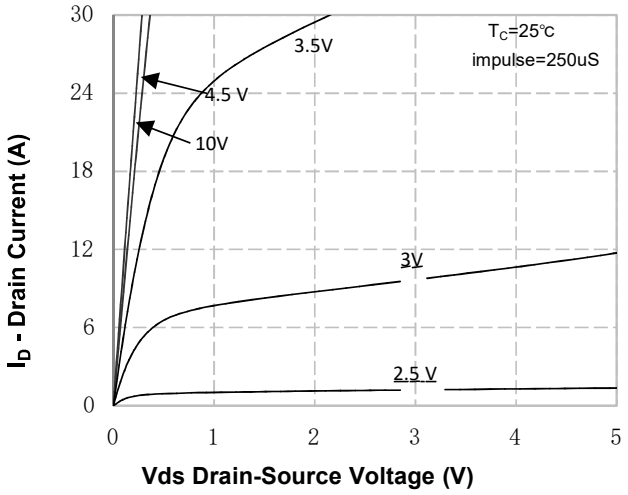
Electrical characteristics (T_A = 25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain - Source Breakdown Voltage	BV_{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	1.5	2.5	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS}= 10V, I_D= 8A		8	11	mΩ
		V_{GS}= 4.5V, I_D= 6A		12	16	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}= 15 V, V_{GS}= 0 V, f= 1.0 MHz		1060		pF
Output Capacitance	C_{oss}			122		
Reverse Transfer Capacitance	C_{rss}			102		
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} =15V, I_D =30A, V_{GS} = 10V		21		nC
Gate-source Charge	Q_{gs}			3		
Gate-drain Charge	Q_{gd}			5		
Turn-on Delay Time	$t_{d(on)}$	V_{GS}=10V, V_{DS}=15V, 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						
Drain to Source Diode Forward Voltage	V_{SD}	V_{GS} = 0V, I_{SD} =10A,T_J = 25℃			1.2	V

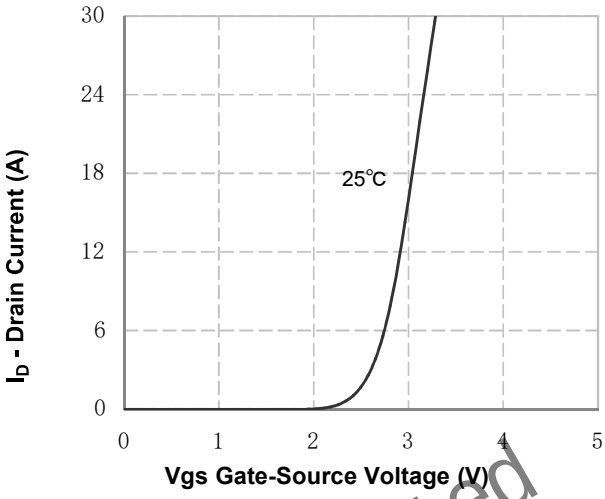
Notes:

1. Drain current limited by maximum junction temperature.
2. E_{AS} condition: T_J =25℃, V_{DD} =20V, V_G =10V,L=0.5mH.

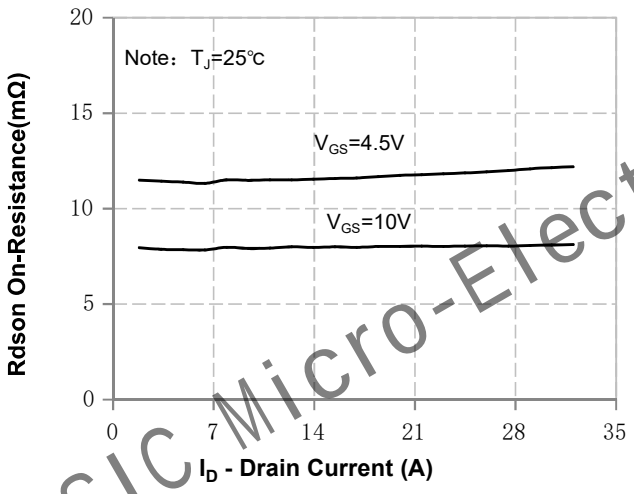
Typical characteristics



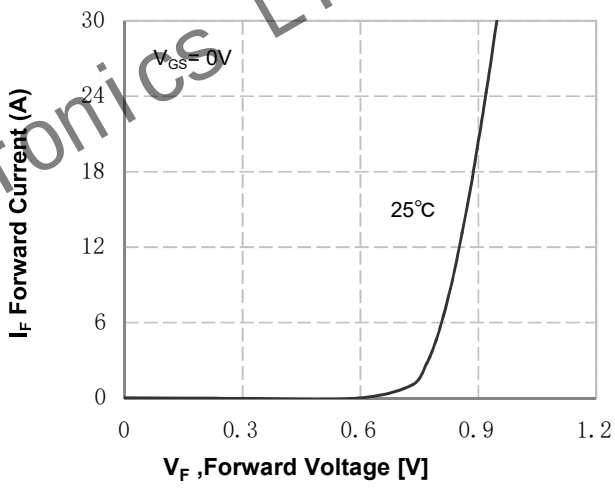
Output Characteristics



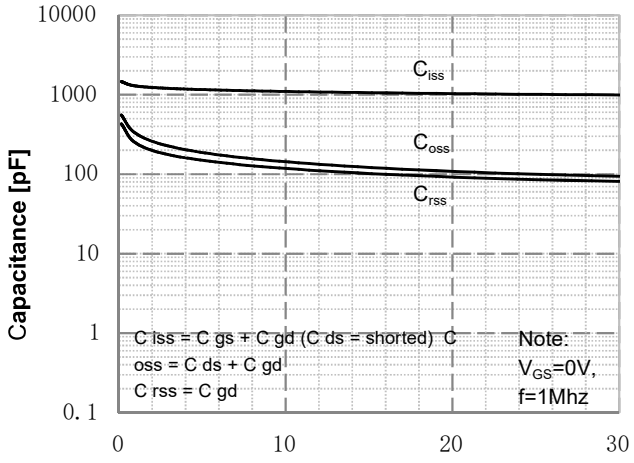
Transfer Characteristics



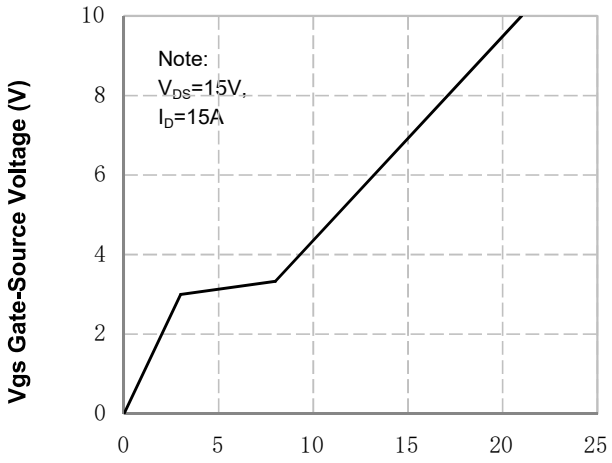
On Resistance vs. Drain Current



Body-Diode Characteristics

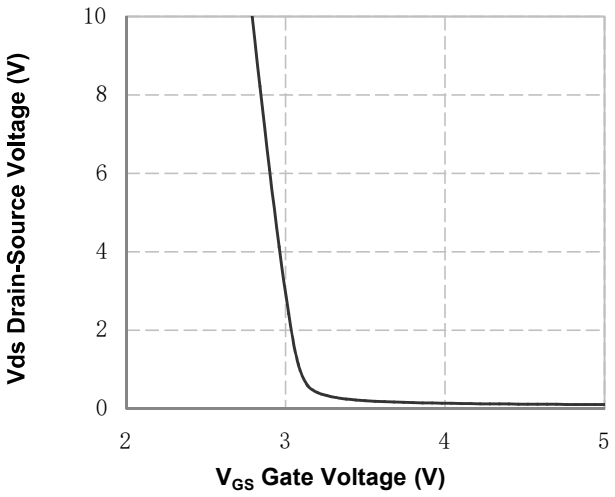


Capacitance Characteristics

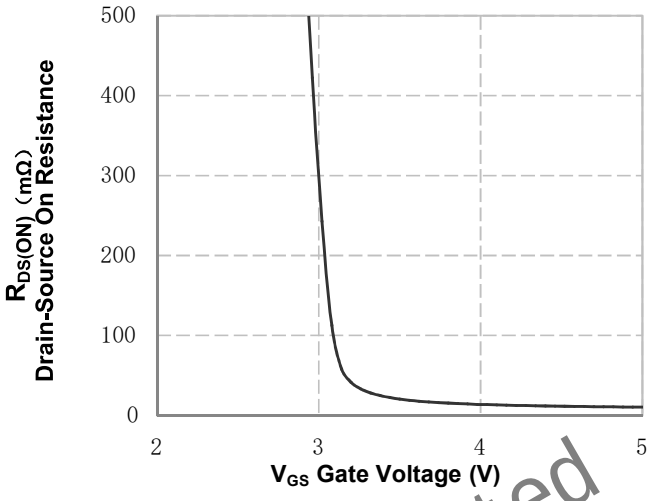


Gate Charge

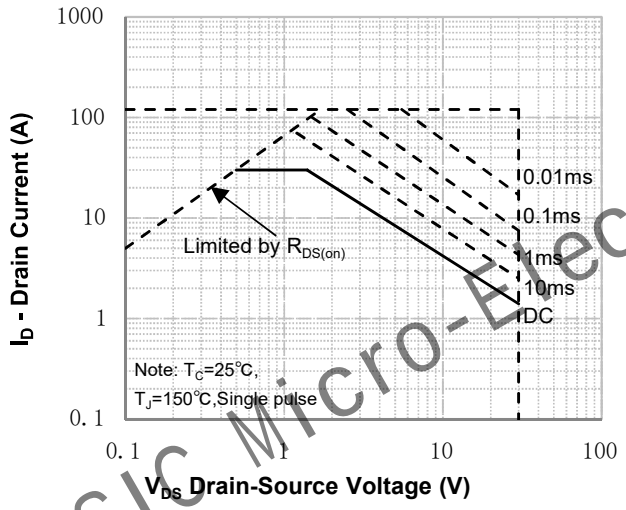
Typical characteristics



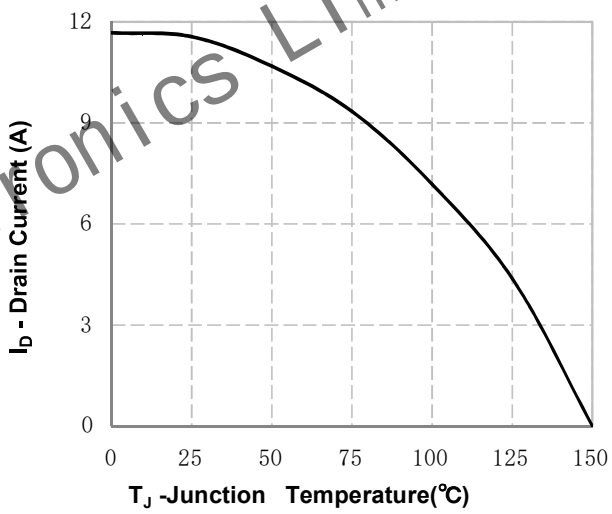
Breakdown Voltage Variation vs Gate-Voltage



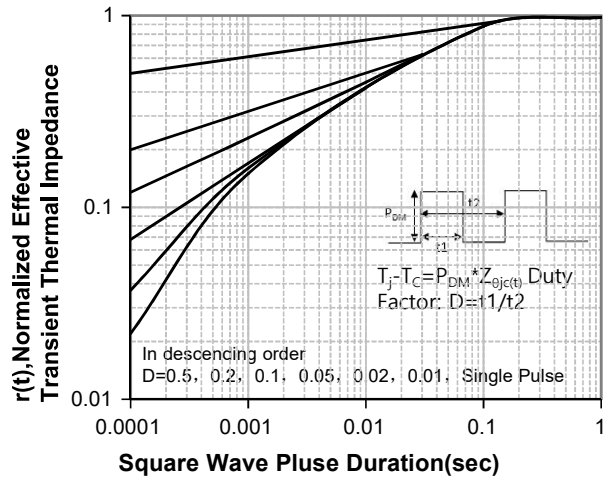
On Resistance vs. Gate-Source Bias



Maximum Safe Operating Area(TO-252)

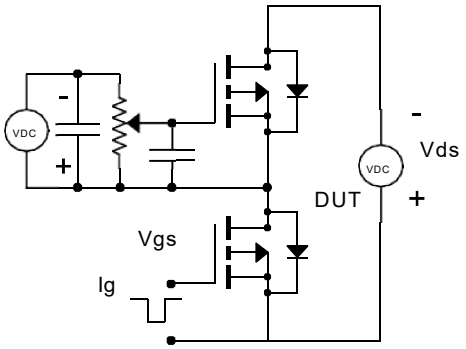


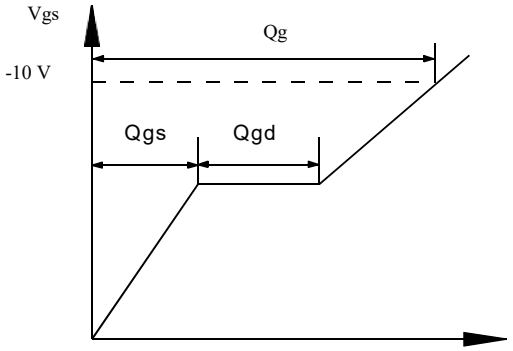
Current De-rating



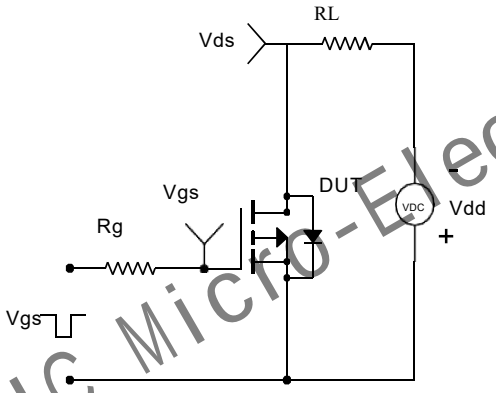
Transient Thermal Impedance, Junction-Case

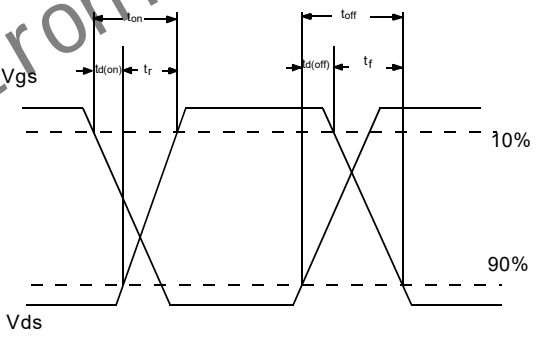
Gate Charge Test Circuit & Waveform



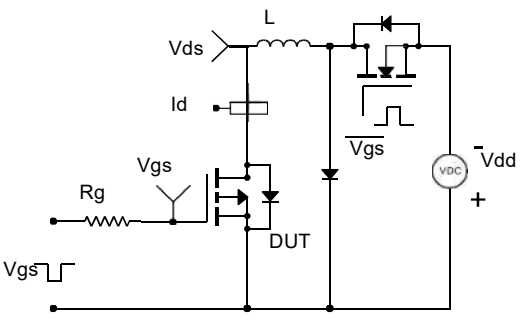


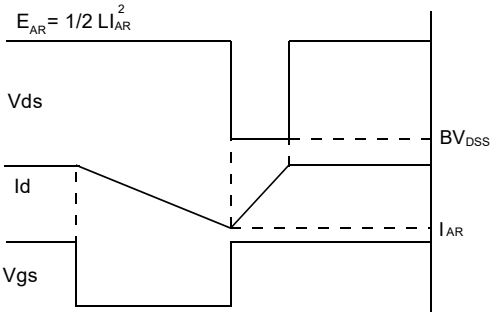
Resistive Switching Test Circuit & Waveforms



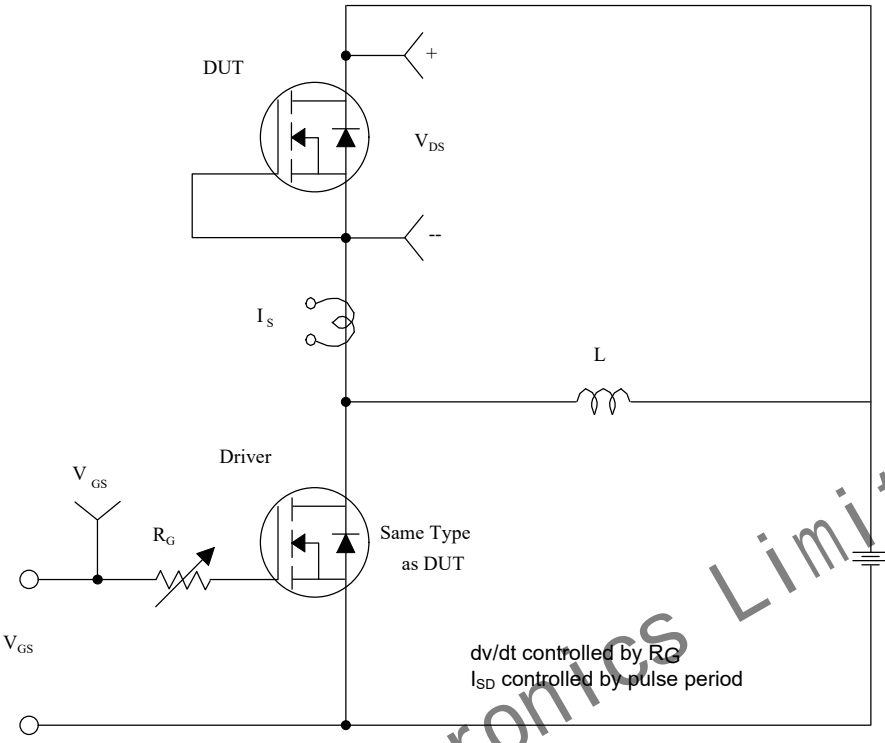


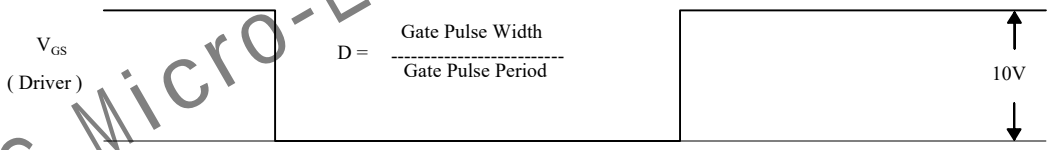
Unclamped Inductive Switching Test Circuit & Waveforms

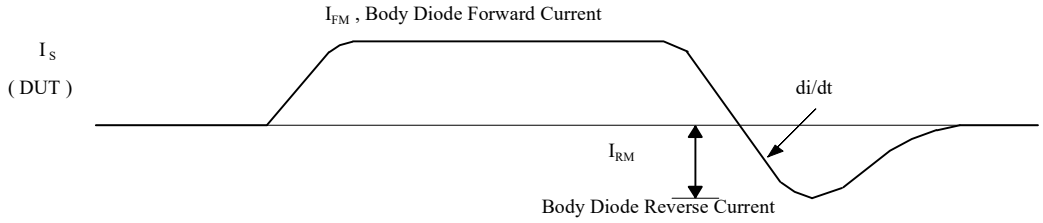


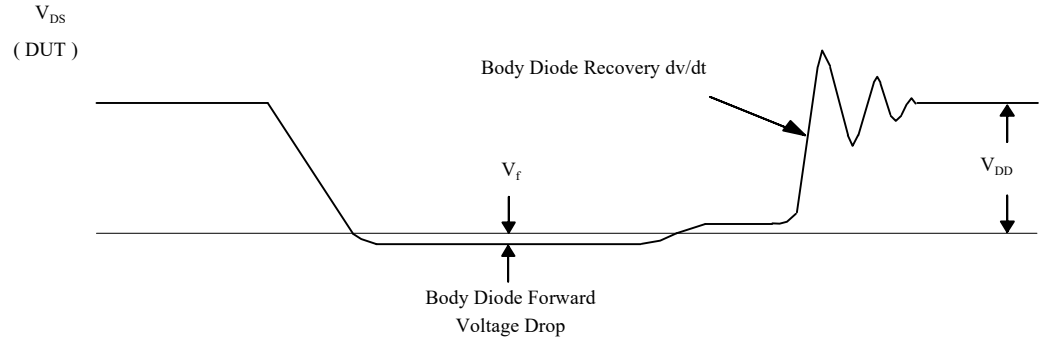


Peak Diode Recovery dv/dt Test Circuit & Waveforms



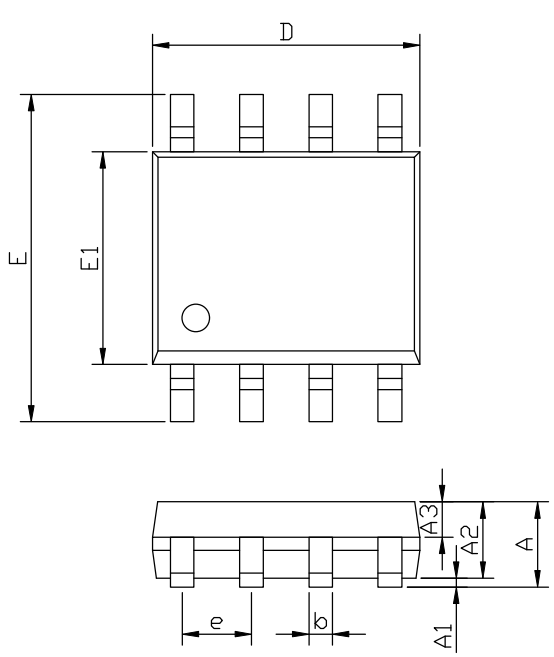






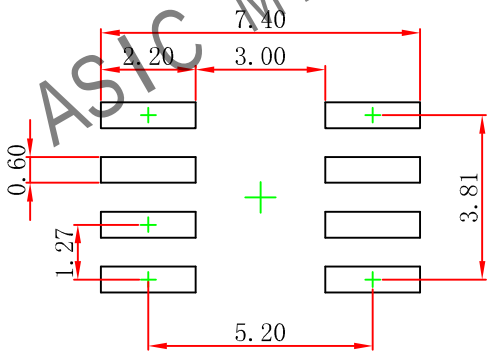
PACKAGE OUTLINE DIMENSIONS

SOP8



Symbol	Dimensions in millimeters		
	Min.	Typ.	Max.
A	-	-	1.75
A1	0.05	-	0.20
A2	1.30	1.40	1.50
A3	0.60	0.65	0.70
b	0.39	-	0.47
C	0.20	-	0.24
D	4.80	4.90	5.00
E	5.80	6.00	6.20
E1	3.80	3.90	4.00
e	1.24	1.27	1.30
h	0.30	0.40	0.50
L	0.50	-	0.80
L1	1.00	1.05	1.10
θ	0°	-	8°

Recommended PCB Layout (Unit: mm)



Notes:

This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.