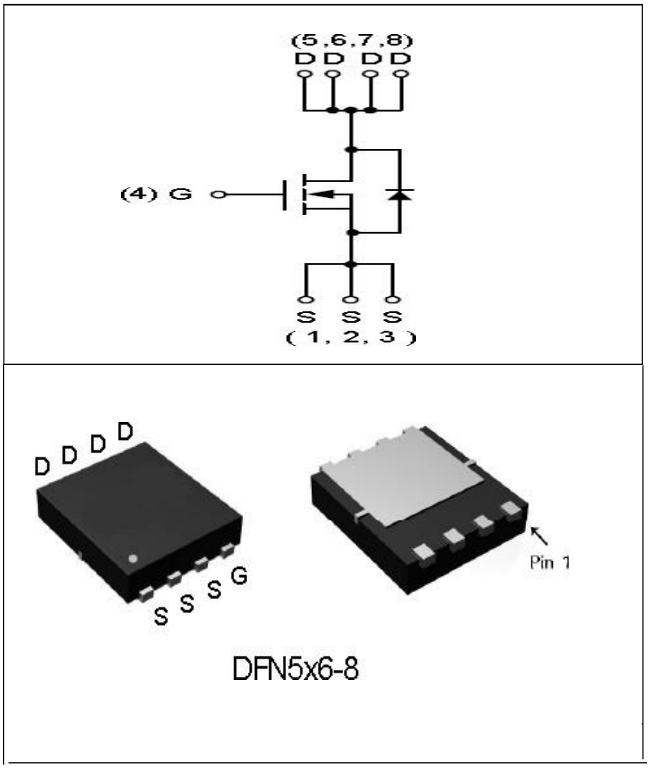
深圳市诚芯微科技股份有限公司
SHENZHEN CHENGXINWEI TECHNOLOGY CO., LTD.

N-channel Enhancement Mode Mosfet CX010N06

DESCRIPTION

The CX010N06 is the high celldensity trenched N-CH MOSFETs,which provide excellent RDSON and GATE charge for mosr of the synchronous Rectification



GENERAL FEATURES

- VDS= 95V
  RDS(ON) =6.1 m Ω @ VGS= 10V
- Low RDS(on) & FOM
- Extremely low switching loss
- Excellent reliability and uniformity
- Fast switching and soft recovery

Application

- PD charger
- Switching voltage regulator
- DC-DC convertor
- Switched mode power supply

■ **Absolute Maximum Ratings** (T_A=25℃unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	95	V
Gate-source Voltage		V_{GS}	±20	V
Drain Current	T_C=25℃	I_D	110	A
	T_C=100℃		80	
Pulsed Drain Current [A]		I_{DM}	280	A
Total Power Dissipation	T_C=25℃	P_D	88	W
Single Pulse Avalanche Energy [B]		E_{AS}	78	mJ
Thermal Resistance Junction-to-Case [C]		RθJC	1.6	℃/ W
Thermal resistance, junction-ambient4)		RθJA	30	℃/ W
Junction and Storage Temperature Range		T_J ,TST G	-55～+150	℃

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ELECTRICAL CHARACTERISTICS (T_A=25℃unless otherwise noted)

Parameter	Symbol	Conditions		Min	Typ	Max	Units
Static Parameter							
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}= 0V, I_D=250μA		95	102		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}= 95V V_{GS}=0V	T_J=25℃			1	μA
			T_J=55℃			10	
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		2	3	4	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= 10V, I_D=40A			6.1	7.4	mΩ
Diode Forward Voltage	V_{SD}	I_S=50 A,V_{GS}=0V			0.95	1.4	V
Dynamic Parameters							
Input Capacitance	C_{iss}	V_{DS}=50V,V_{GS}=0V,f=1MHZ			2270		pF
Output Capacitance	C_{oss}				797		
Reverse Transfer Capacitance	C_{rss}				36		
Switching Parameters							
Total Gate Charge	Q_g	V_{GS}=10V,V_{DS}=50V,I_D= 25A			32		nC
Gate-Source Charge	Q_{gs}				11		
Gate-Drain Charge	Q_{gd}				4.78		
Gate plateau voltage							
Reverse Recovery Chrage	Q_{rr}	I_F=20A, VGS=0V, dis/dt=100A/uS			64		
Reverse Recovery Time	t_{rr}				51.5		ns
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=10V,V_{DS}=50V,I_D= 25A RG=2.2Ω			9.3		
Turn-on Rise Time	t_r				34.8		
Turn-off Delay Time	$t_{D(off)}$				24.6		
Turn-off fall Time	t_f				71		

A. Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.

B. T_j=25℃, V_{DD}=50V,L=0.5mH, R_g=25Ω IAS=20A.

C. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance, where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design, while $R_{\theta JA}$ is determined by the board design. The maximum rating presented here is based on mounting on a 1 in 2 pad of 2oz copper.

■ Typical Performance Characteristics

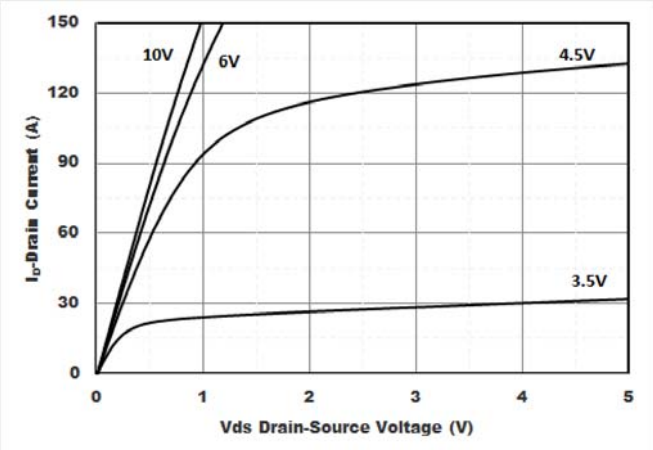


Figure1. Output Characteristics

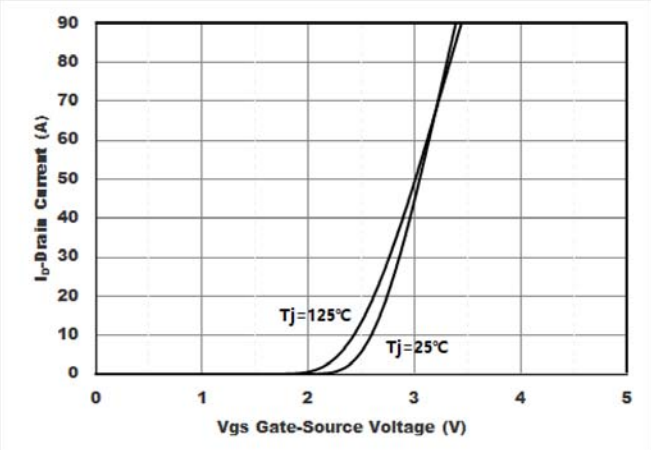


Figure2. Transfer Characteristics

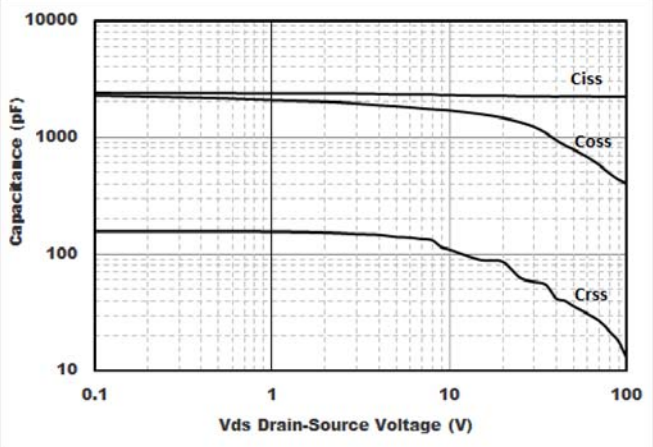


Figure3. Capacitance Characteristics

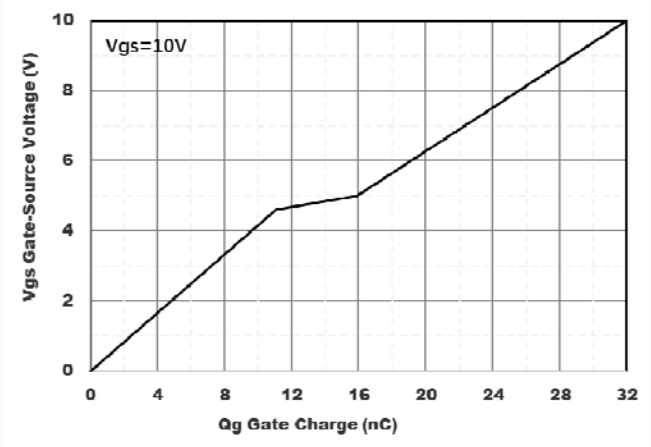


Figure4. Gate Charge

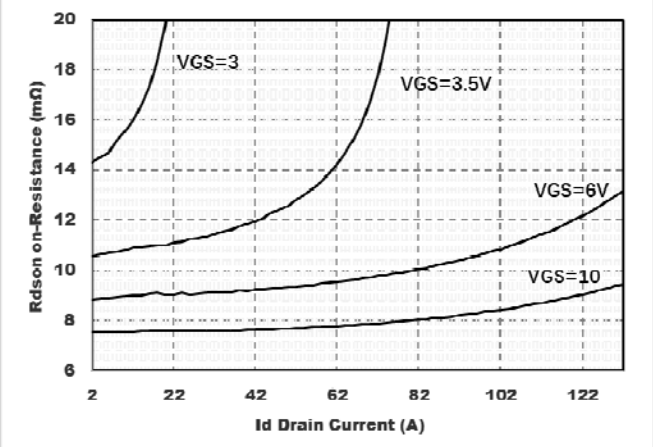


Figure5. : On-Resistance vs. Gate to Source Voltage

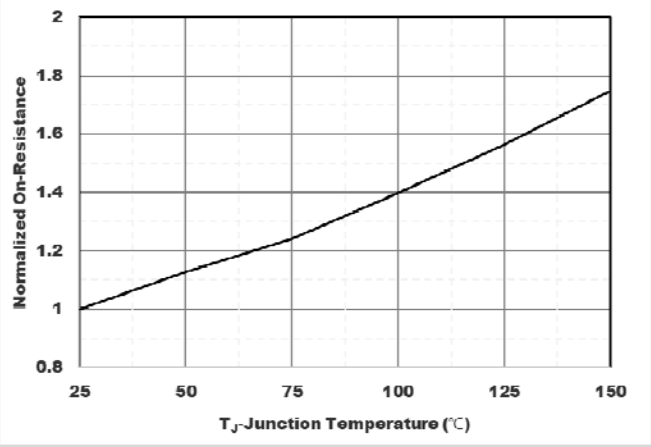


Figure6.Normalized On-Resistance

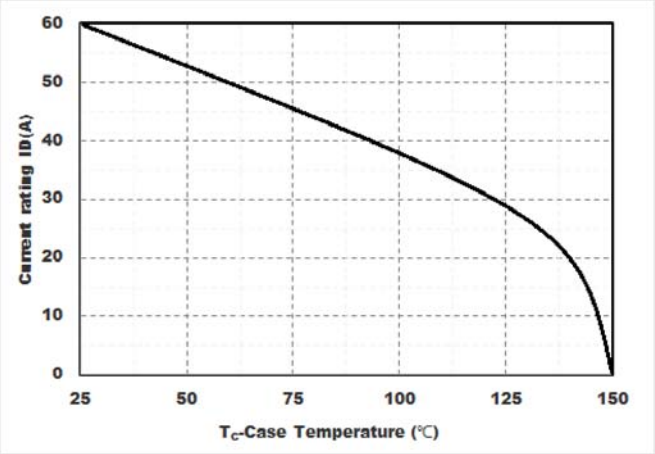


Figure7. Drain current

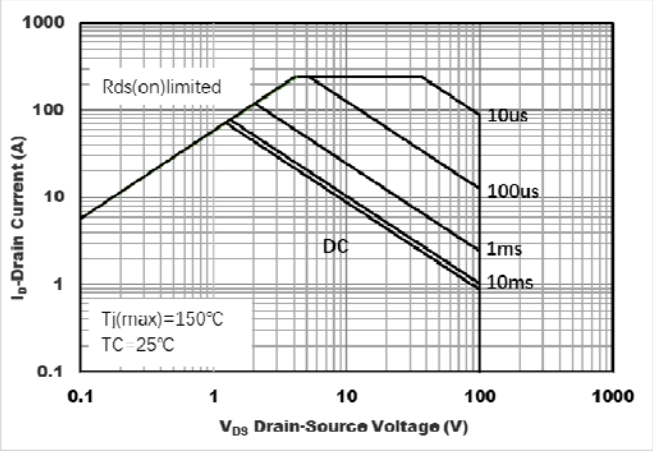


Figure8.Safe Operation Area

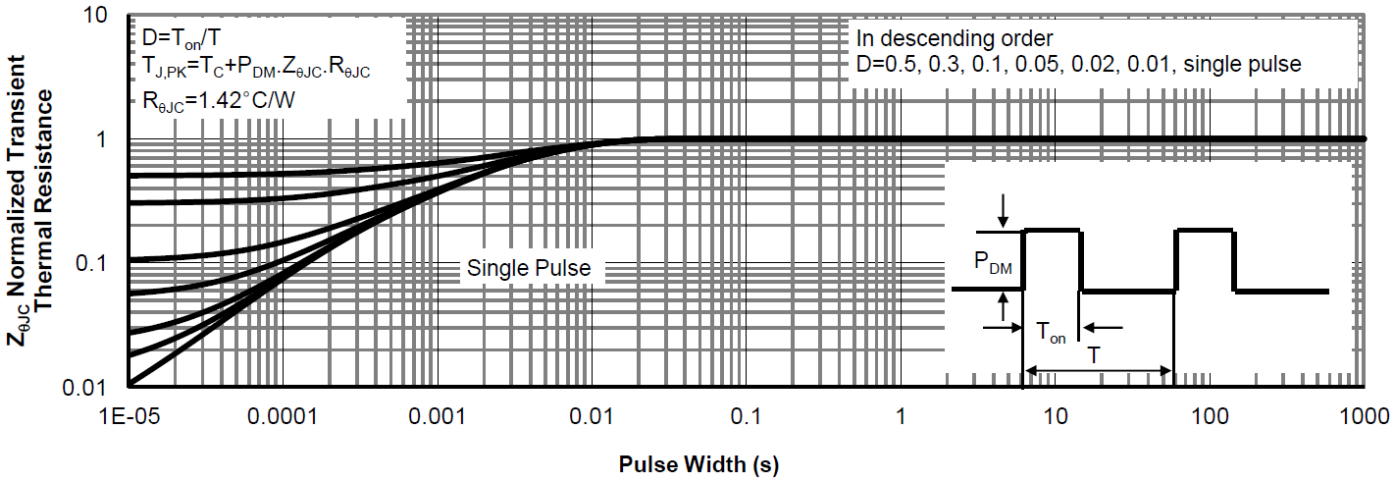


Figure9.Normalized Maximum Transient thermal impedance

Test circuits and waveforms

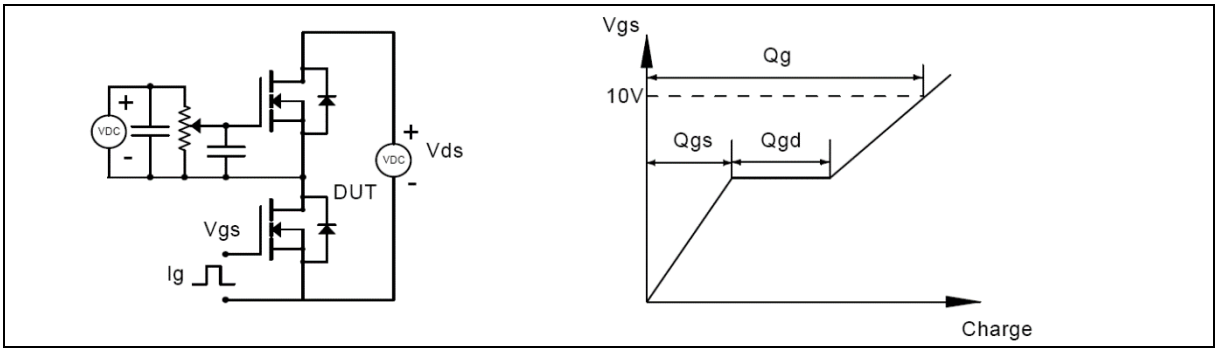


Figure 1. Gate charge test circuit & waveform

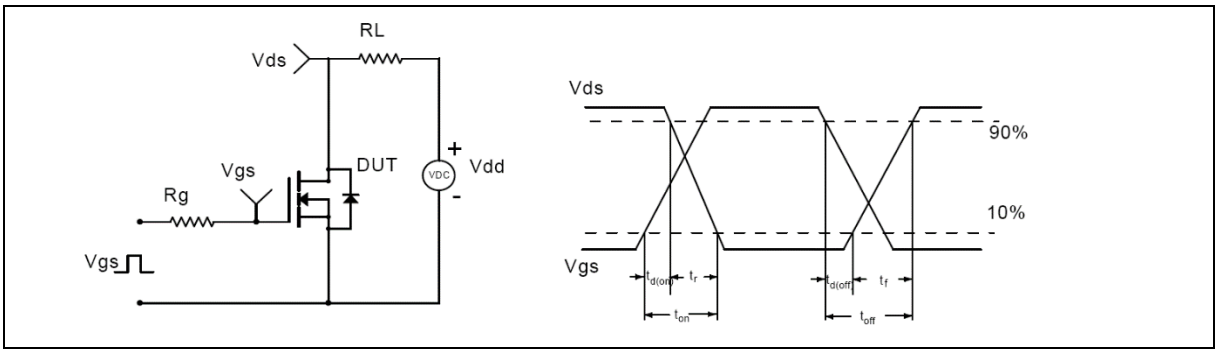


Figure 2. Switching time test circuit & waveforms

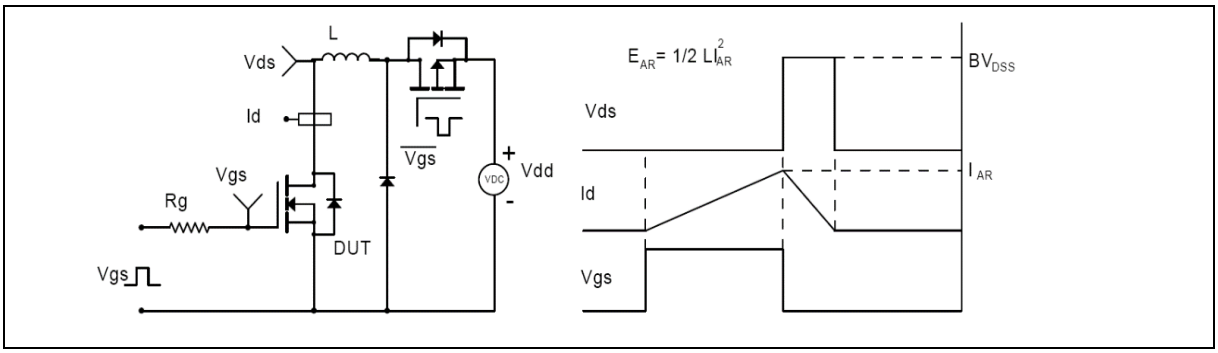


Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

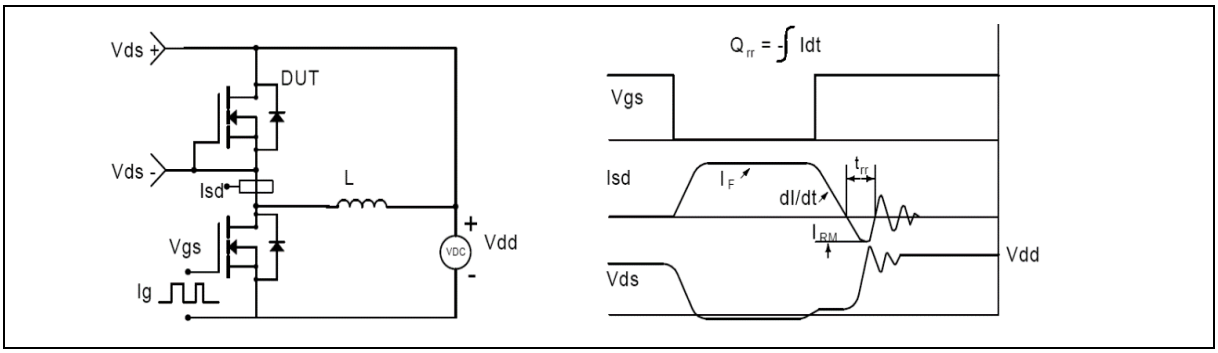
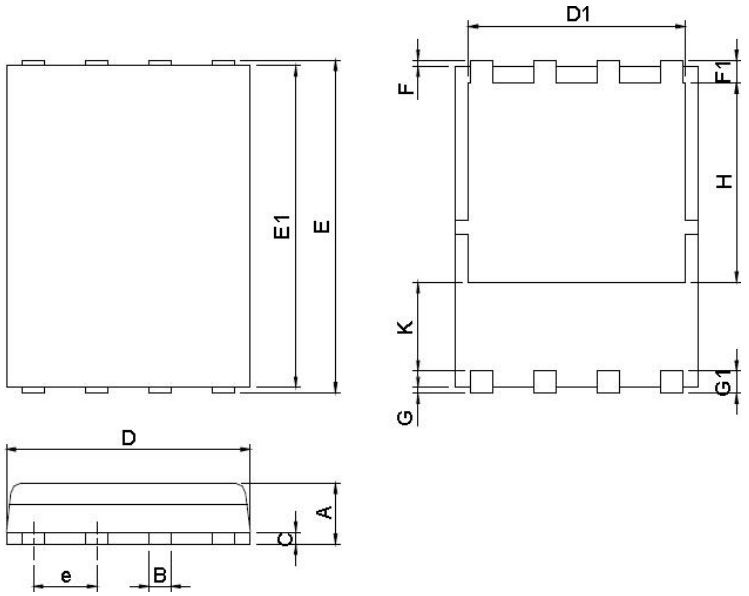


Figure 4. Diode reverse recovery test circuit & waveforms

Package Information

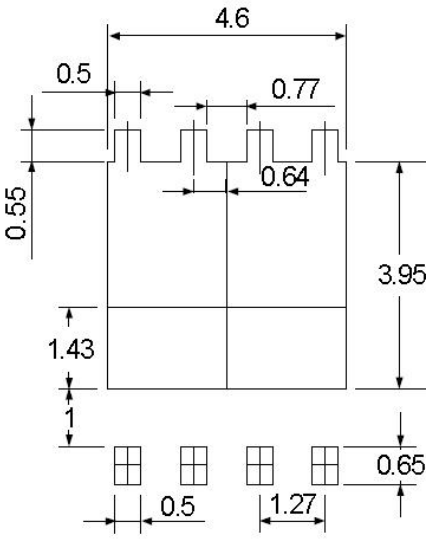
■ DFN5*6-8 Package



SYMBOL	DFN5x6-8			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.90	1.20	0.035	0.047
B	0.3	0.51	0.012	0.020
C	0.19	0.25	0.007	0.010
D	4.80	5.30	0.189	0.209
D1	4.00	4.40	0.157	0.173
E	5.90	6.20	0.232	0.244
E1	5.50	5.80	0.217	0.228
e	1.27 BSC		0.050 BSC	
F	0.05	0.30	0.002	0.012
F1	0.35	0.75	0.014	0.030
G	0.05	0.30	0.002	0.012
G1	0.35	0.75	0.014	0.030
H	3.34	3.9	0.131	0.154
K	0.762	-	0.03	-

Note : 1.Dimension D, D1,D2 and E1 do not include mold flash or protrusions.
Mold flash or protrusions shall not exceed 10 mil.

RECOMMENDED LAND PATTERN



UNIT: mm