

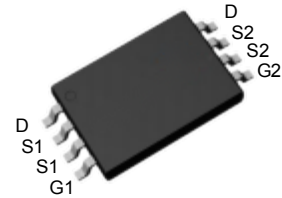
Features

- 20V/7A,
 $R_{DS(ON)} = 17m\Omega$ (typ.) @ $V_{GS} = 4.5V$
 $R_{DS(ON)} = 20m\Omega$ (typ.) @ $V_{GS} = 2.5V$
- 100% UIS Tested
- Reliable and Rugged
- Lead Free and Green Devices Available
 (RoHS Compliant)
- ESD Protection

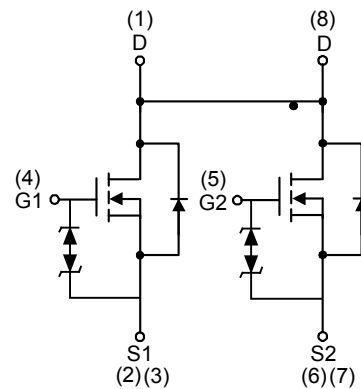
Applications

- Power Management in Notebook Computer, Portable Equipment and Battery Powered Systems.

Pin Description



Top View of TSSOP-8



N-Channel MOSFET

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Rating	Unit	
V_{DSS}	Drain-Source Voltage	20	V	
V_{GSS}	Gate-Source Voltage	± 12		
I_D	Continue Drain Current	$T_A=25^\circ\text{C}$	7	A
		$T_A=70^\circ\text{C}$	2.8	
I_{DM}	Pulsed Drain Current	$T_A=25^\circ\text{C}$	21	
I_S	Diode continuous forward current	7	A	
T_J	Maximum Junction Temperature	150	$^\circ\text{C}$	
T_{STG}	Storage Temperature Range	-55 to 150		
P_D	Maximum Power Dissipation	$T_A=25^\circ\text{C}$	1.25	W
		$T_A=70^\circ\text{C}$	0.8	
$R_{\theta JA}^*$	Thermal Resistance-Junction to Ambient	100	$^\circ\text{C/W}$	

Note * : Surface Mounted on 1in^2 pad area, $t \leq 10\text{sec}$.

Electrical Characteristics ($T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

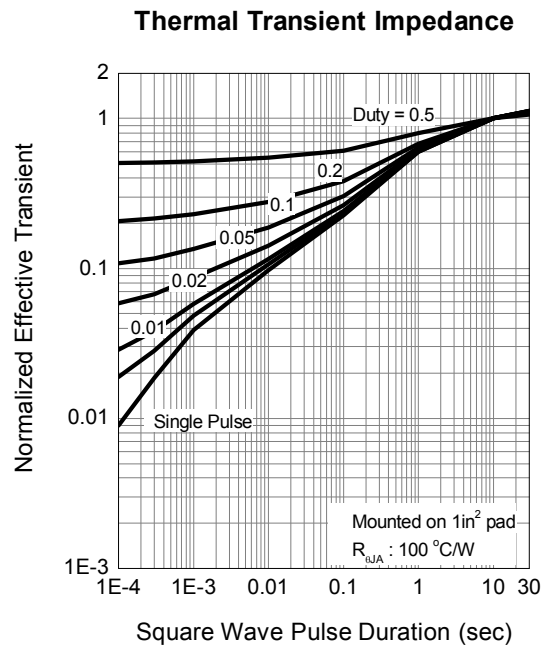
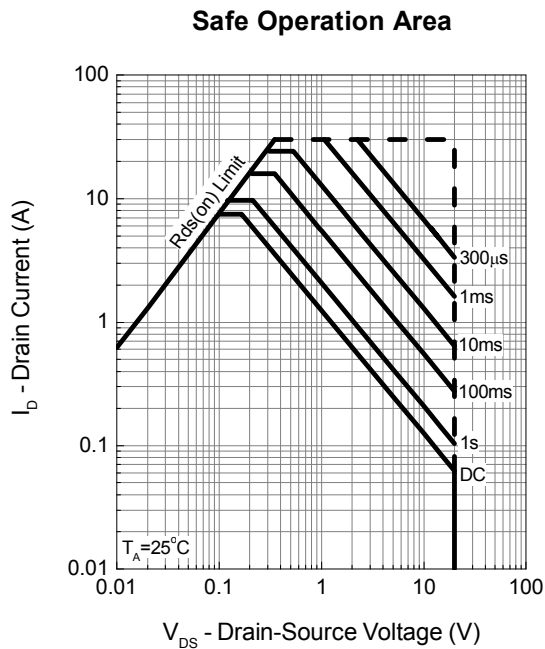
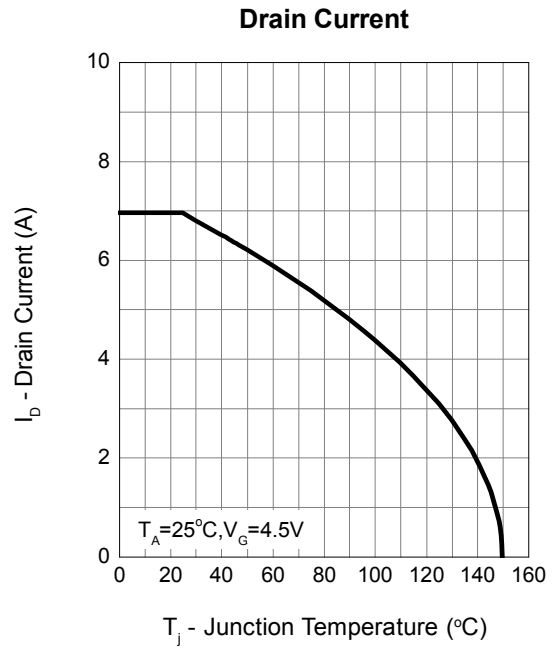
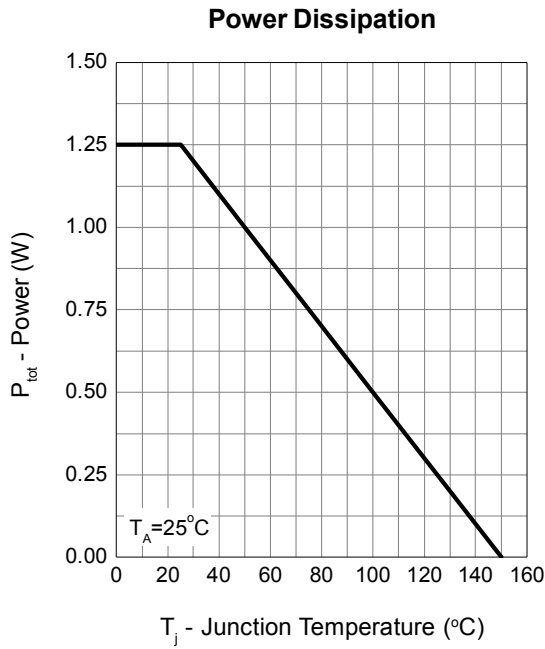
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=16V, V_{GS}=0V$	-	-	1	μA
		$T_J=85^\circ C$	-	-	30	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	0.5	0.7	1.1	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 10V, V_{DS}=0V$	-	-	± 10	μA
$R_{DS(on)}^a$	Drain-Source On-state Resistance	$V_{GS}=4.5V, I_{DS}=7.5A$	-	17	20	m Ω
		$V_{GS}=2.5V, I_{DS}=5A$	-	20	25	
Diode Characteristics						
V_{SD}^a	Diode Forward Voltage	$I_{SD}=1A, V_{GS}=0V$	-	0.7	1.3	V
t_{rr}	Reverse Recovery Time	$I_{SD}=7.5A, di_{SD}/dt=100A/\mu s$	-	10	-	nS
Q_{rr}	Reverse Recovery Charge		-	3.5	-	nC
Dynamic Characteristics^b						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1MHz$	-	8	-	Ω
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=10V,$ Frequency=1.0MHz	-	592	-	pF
C_{oss}	Output Capacitance		-	148	-	
C_{riss}	Reverse Transfer Capacitance		-	119	-	
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD}=10V, R_L=10\Omega,$ $I_{DS}=1A, V_{GEN}=4.5V,$ $R_G=6\Omega$	-	9	16	ns
t_r	Turn-on Rise Time		-	13	23	
$t_{d(OFF)}$	Turn-off Delay Time		-	55	99	
t_f	Turn-off Fall Time		-	36	65	
Gate Charge Characteristics^b						
Q_g	Total Gate Charge	$V_{DS}=10V, V_{GS}=4.5V,$ $I_{DS}=7.5A$	-	9.8	12.8	nC
Q_{gs}	Gate-Source Charge		-	0.5	-	
Q_{gd}	Gate-Drain Charge		-	3.6	-	

Note a Pulse test ; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

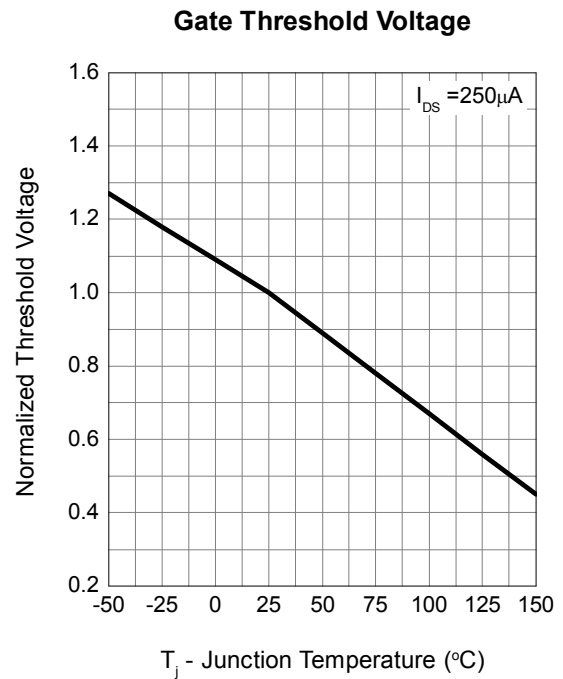
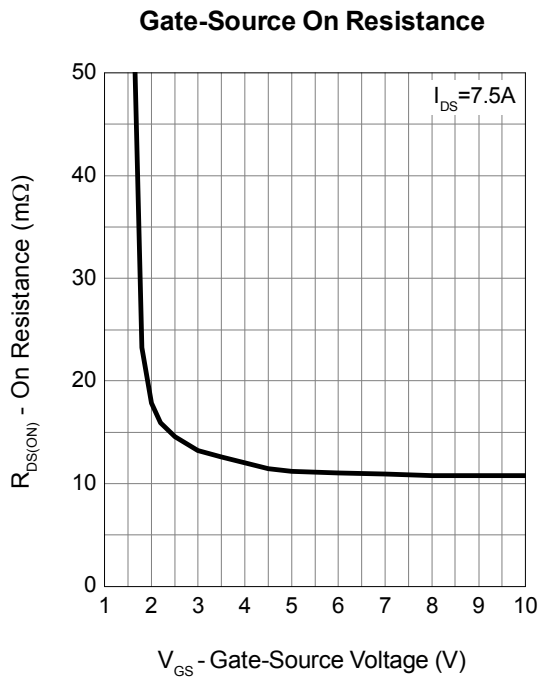
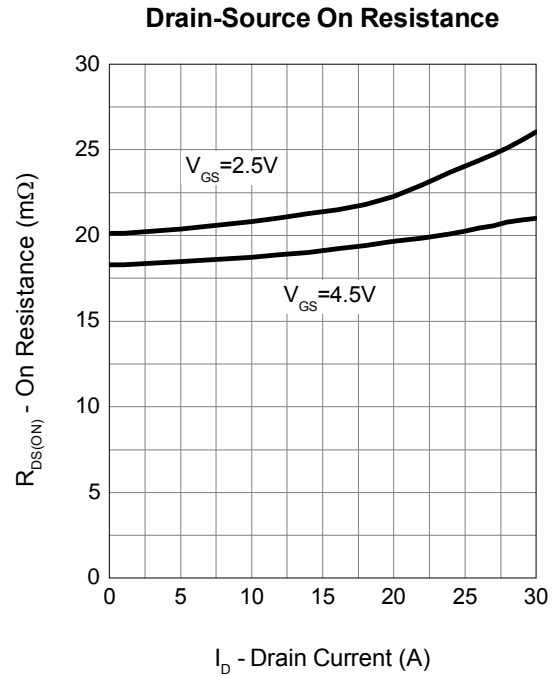
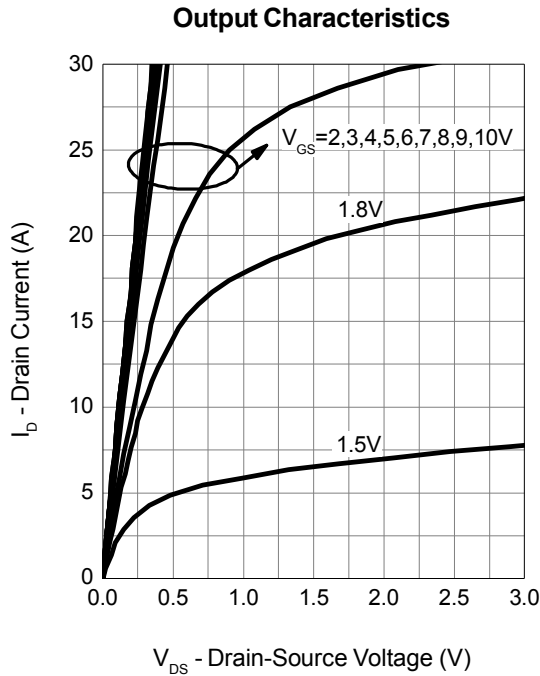
Note b Guaranteed by design, not subject to production testing.

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Typical Operating Characteristics

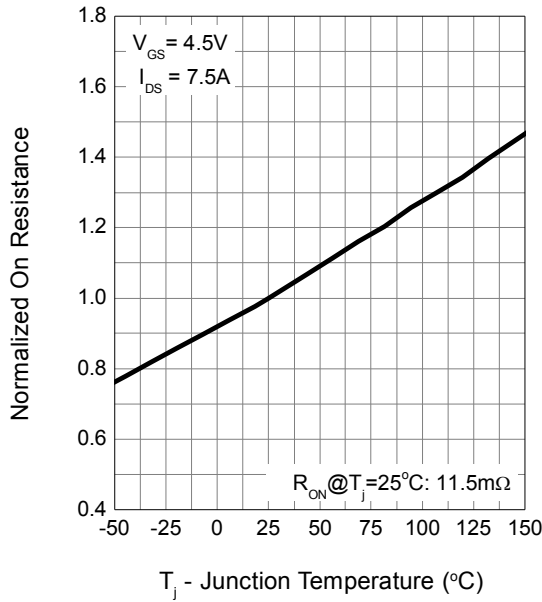


Typical Operating Characteristics (Cont.)

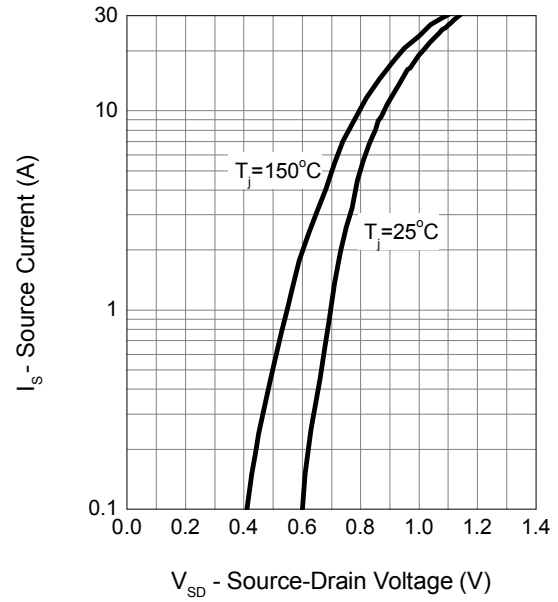


Typical Operating Characteristics (Cont.)

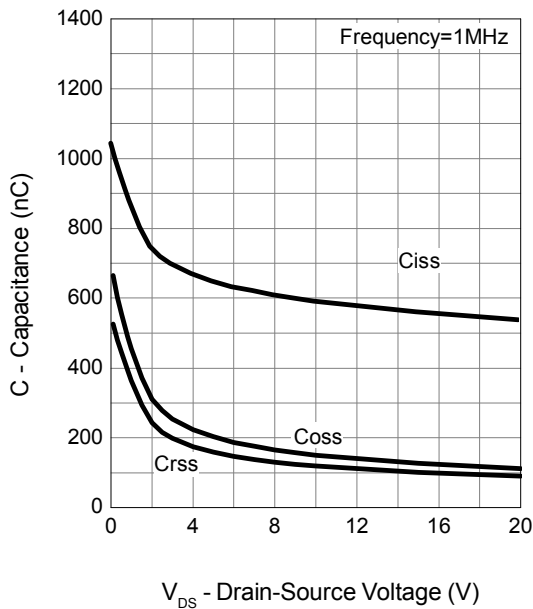
Drain-Source On Resistance



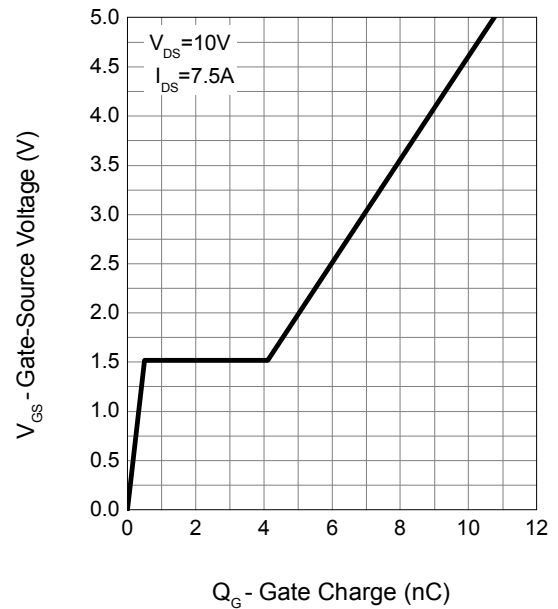
Source-Drain Diode Forward



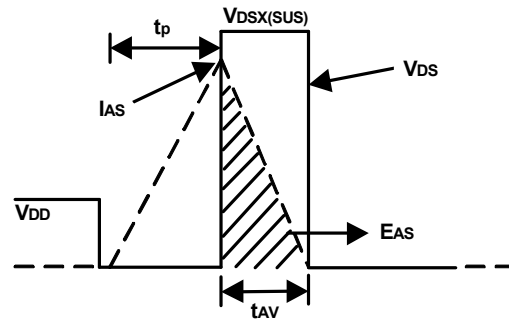
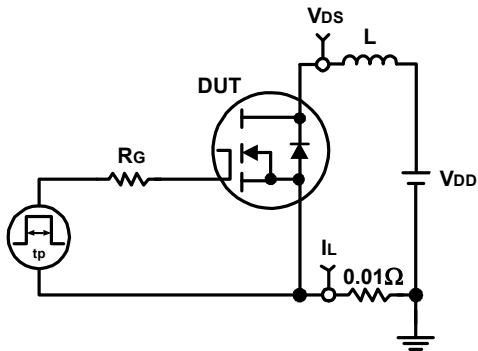
Capacitance



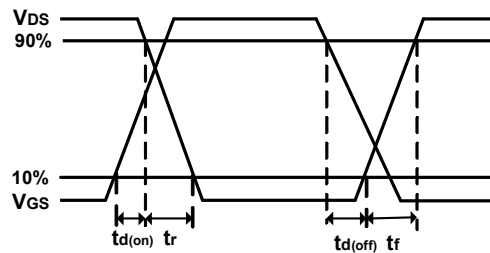
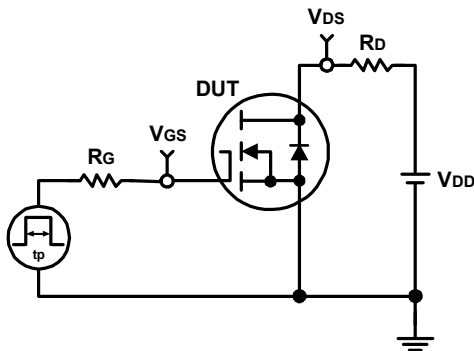
Gate Charge

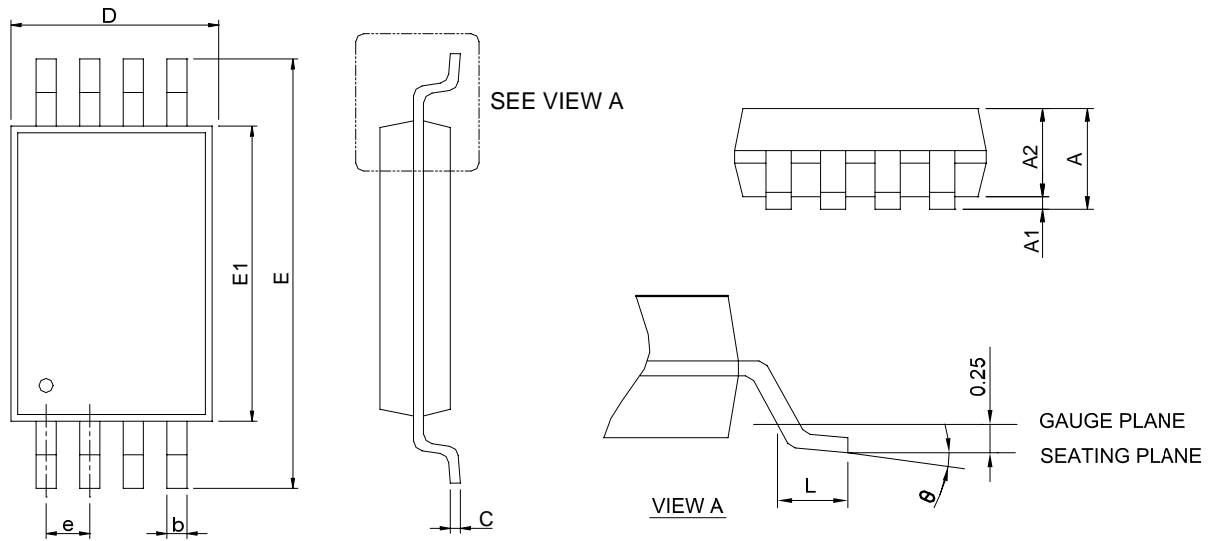


Avalanche Test Circuit and Waveforms

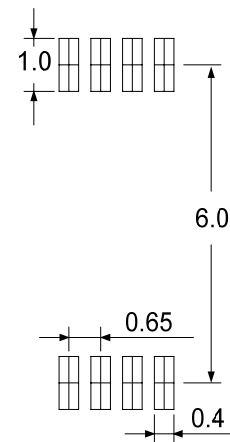


Switching Time Test Circuit and Waveforms





DIMENSIONS	TSSOP-8			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	-	1.20	-	0.047
A1	0.05	0.15	0.002	0.006
A2	0.80	1.05	0.031	0.041
b	0.19	0.30	0.007	0.012
c	0.09	0.20	0.004	0.008
D	2.90	3.10	0.114	0.122
E	6.20	6.60	0.244	0.260
E1	4.30	4.50	0.169	0.177
e	0.65 BSC		0.026 BSC	
L	0.45	0.75	0.018	0.030
θ	0°	8°	0°	8°



Note : 1. Follow JEDEC MO-153 AA

2. Dimension "D" does not include mold flash, protrusions or gate burrs. Mold flash, protrusion or gate burrs shall not exceed 6 mil per side.
3. Dimension "E1" does not include inter-lead flash or protrusions. Inter-lead flash and protrusions shall not exceed 10 mil per side.

UNIT: mm