

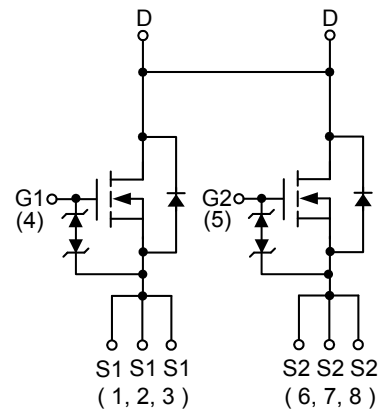
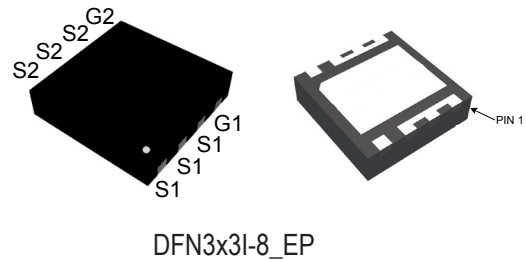
Features

- 18V/60A,
 $R_{DS(ON)} = 3m\Omega(\text{typ.}) @ V_{GS} = 4.5V$
 $R_{DS(ON)} = 3.7m\Omega(\text{typ.}) @ V_{GS} = 2.5V$
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free and Green Devices Available
(RoHS Compliant)
- ESD Protected

Applications

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

Pin Description



N-Channel MOSFET

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

Symbol	Parameter		Rating	Unit
Common Ratings (T _A =25°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage		18	V
V _{GSS}	Gate-Source Voltage		±10	
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	
I _S	Diode Continuous Forward Current	T _C =25°C	60	A
I _D ^a	Continuous Drain Current	T _C =25°C	60	A
		T _C =100°C	48	
I _{DM} ^b	Pulsed Drain Current	T _C =25°C	180	
P _D	Maximum Power Dissipation	T _C =25°C	35	W
		T _C =100°C	14	
R _{θJC}	Thermal Resistance-Junction to Case	Steady State	3.5	°C/W
R _{θJA} ^d	Thermal Resistance-Junction to Ambient	Steady State	78	°C/W
I _{AS} ^e	Avalanche Current, Single pulse (L=0.1mH)		45	A
E _{AS} ^e	Avalanche Energy, Single pulse (L=0.1mH)		100	mJ

Note a: Package is limited by 50A

Note b: Pulse width limited by max. junction temperature.

Note c: R_{θJA} steady state=999s.

Note d: R_{θJA} steady state=999s. R_{θJA} is measured with the device mounted on 1in2, Fr-4 board with 2oz.Copper.

Note e: UIS tested and pulse width limited by maximum junction temperature 150°C (initial temperature T_J=25°C).

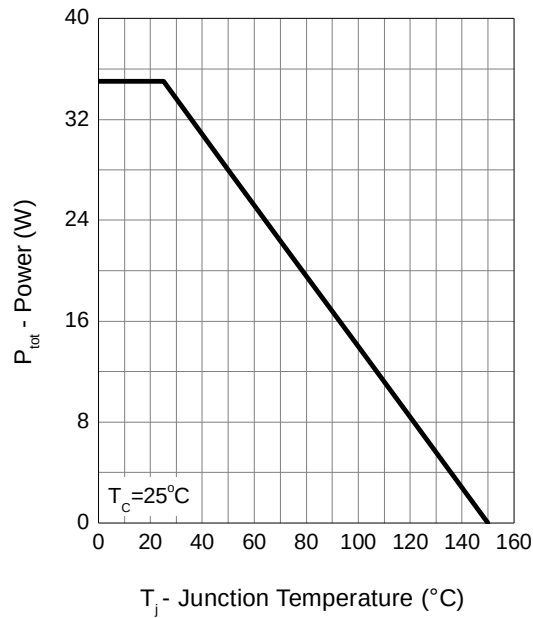
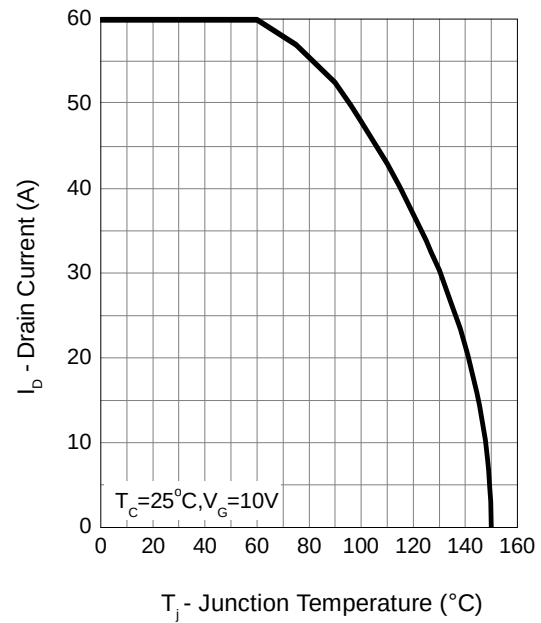
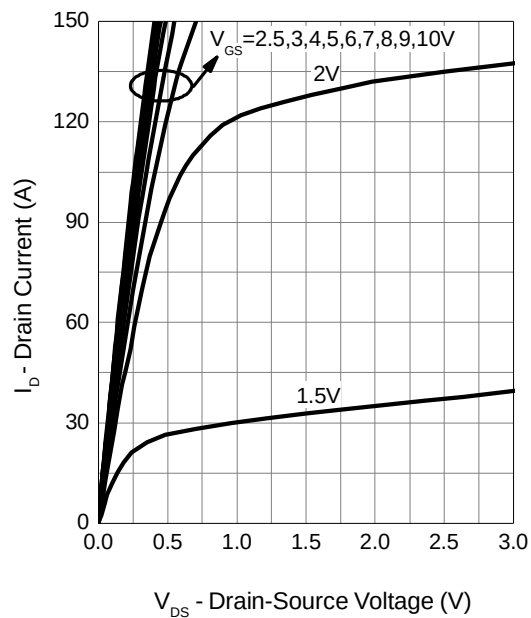
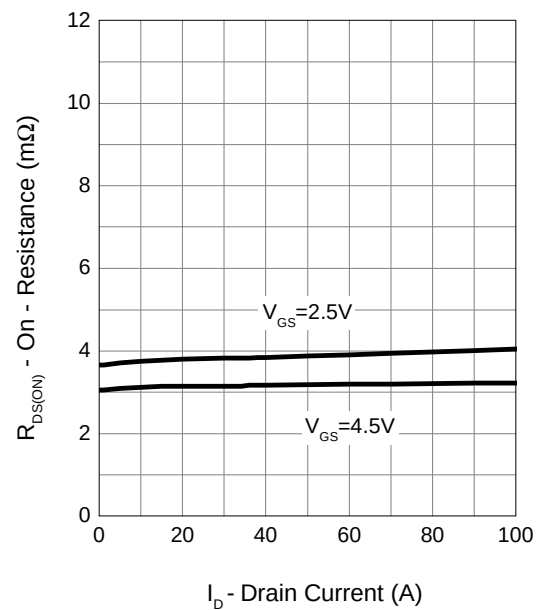
Electrical Characteristics (T_A = 25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	18	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =14.4V, V _{GS} =0V T _J =85°C	-	-	1 30	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	0.5	0.7	1	V
I _{GSS}	Gate Leakage Current	V _{GS} =±10V, V _{DS} =0V	-	-	±10	μA
R _{DS(ON)} ^g	Drain-Source On-state Resistance	V _{GS} =4.5V, I _{DS} =13.5A V _{GS} =2.5V, I _{DS} =10A	-	3 3.7	3.4 4.3	mΩ
Gfs	Forward Transconductance	V _{DS} =5V, I _{DS} =10A	-	34	-	S
Diode Characteristics						
V _{SD} ^d	Diode Forward Voltage	I _{SD} =2A, V _{GS} =0V	-	0.7	1.1	V
t _{rr}	Reverse Recovery Time	I _{SD} =13.5A, dI _{SD} /dt=100A/μs	-	18	-	ns
Q _{rr}	Reverse Recovery Charge		-	6.2	-	nC
Dynamic Characteristics ^g						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, f=1MHz	--	2	3.6	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =10V, Frequency=1.0MHz	-	3775	4910	pF
C _{oss}	Output Capacitance		-	730	-	
C _{rss}	Reverse Transfer Capacitance		-	525	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =10V, R _L =10Ω, I _{DS} =1A, V _{GEN} =10V, R _G =6Ω	-	14	26	ns
t _r	Turn-on Rise Time		-	14.5	27	
t _{d(OFF)}	Turn-off Delay Time		-	130	234	
t _f	Turn-off Fall Time			70	126	
Gate Charge Characteristics ^g						
Q _g	Total Gate Charge	V _{DS} =10V, V _{GS} =4.5V, I _{DS} =13.5A	-	35	50	nC
Q _{gs}	Gate-Source Charge		-	4.7	-	
Q _{gd}	Gate-Drain Charge		-	11.5	-	

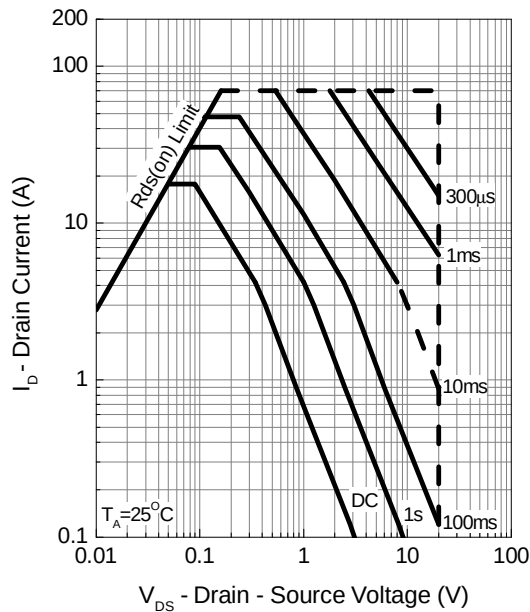
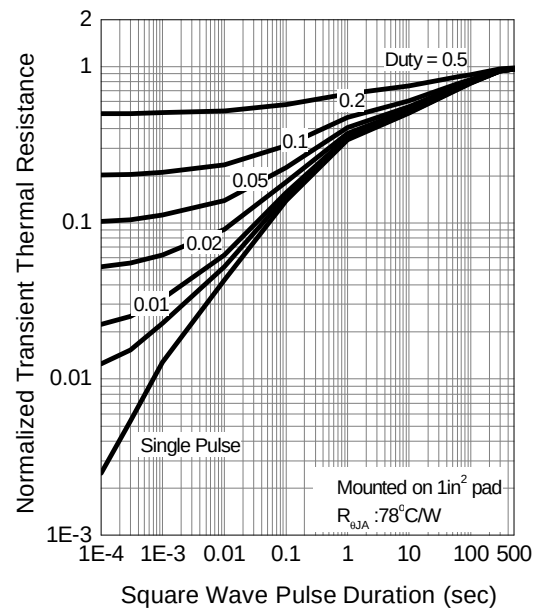
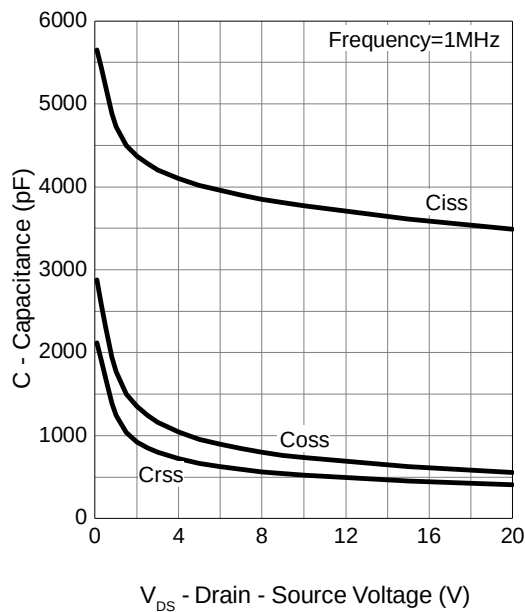
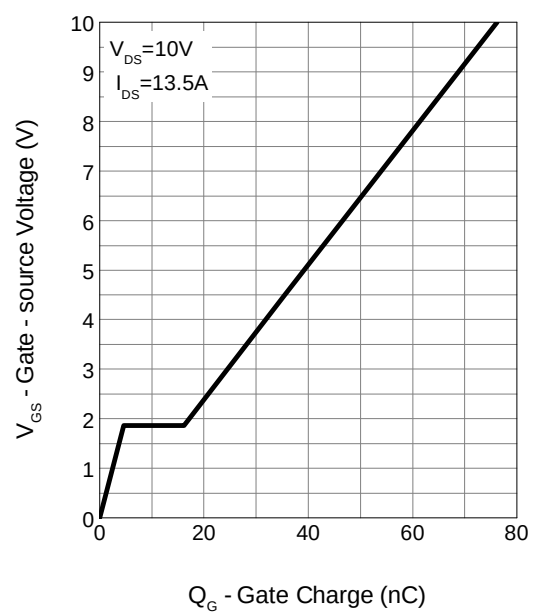
Note f: Pulse test; pulse width≤300μs, duty cycle≤2%.

Note g: Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

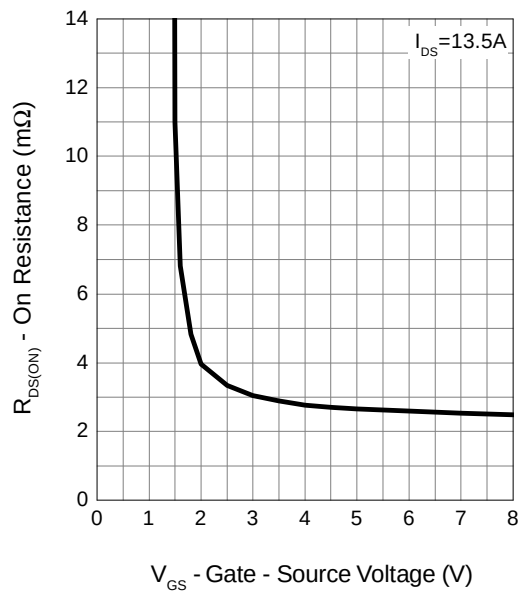
Power Dissipation

Drain Current

Output Characteristics

Drain-Source On Resistance


Typical Operating Characteristics (Cont.)

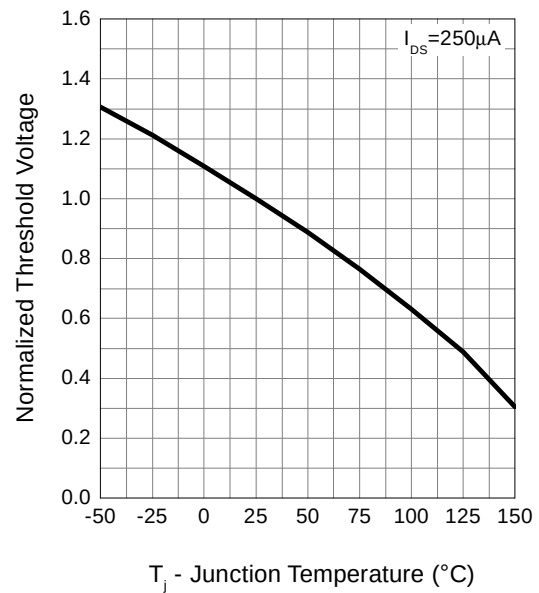
Safe Operation Area

Thermal Transient Impedance

Capacitance

Gate Charge


Typical Operating Characteristics (Cont.)

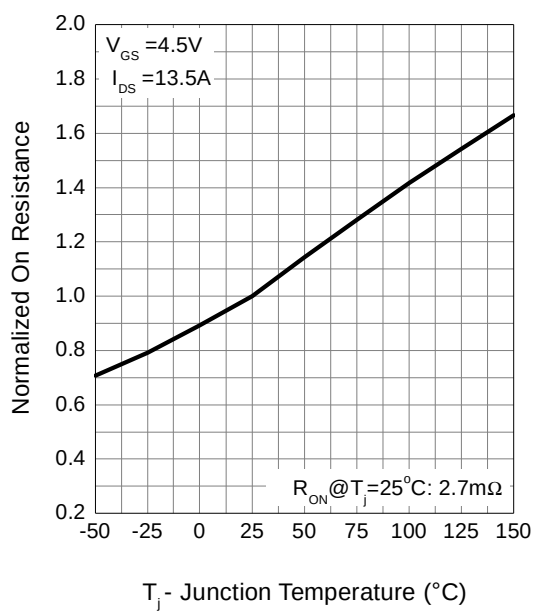
Gate-Source On Resistance



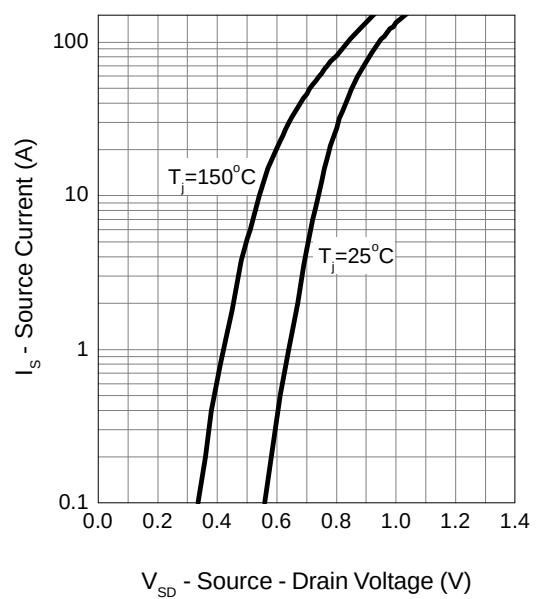
Gate Threshold Voltage



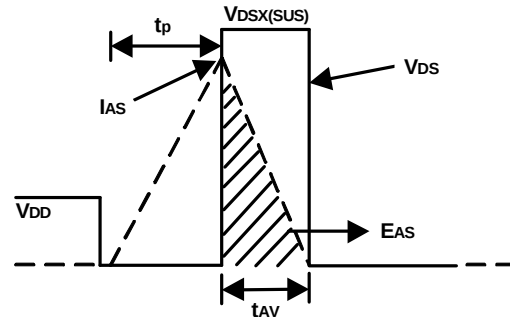
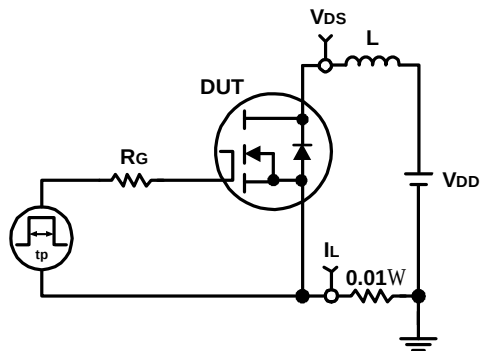
Drain-Source On Resistance



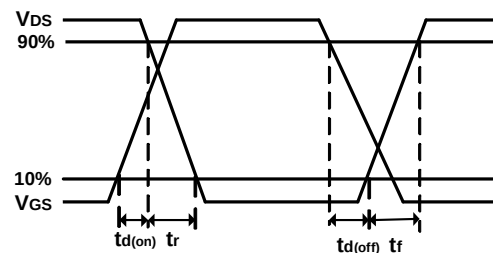
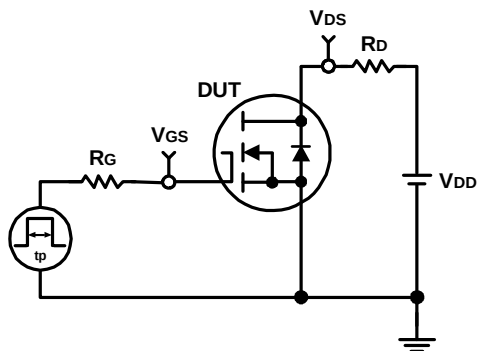
Source-Drain Diode Forward



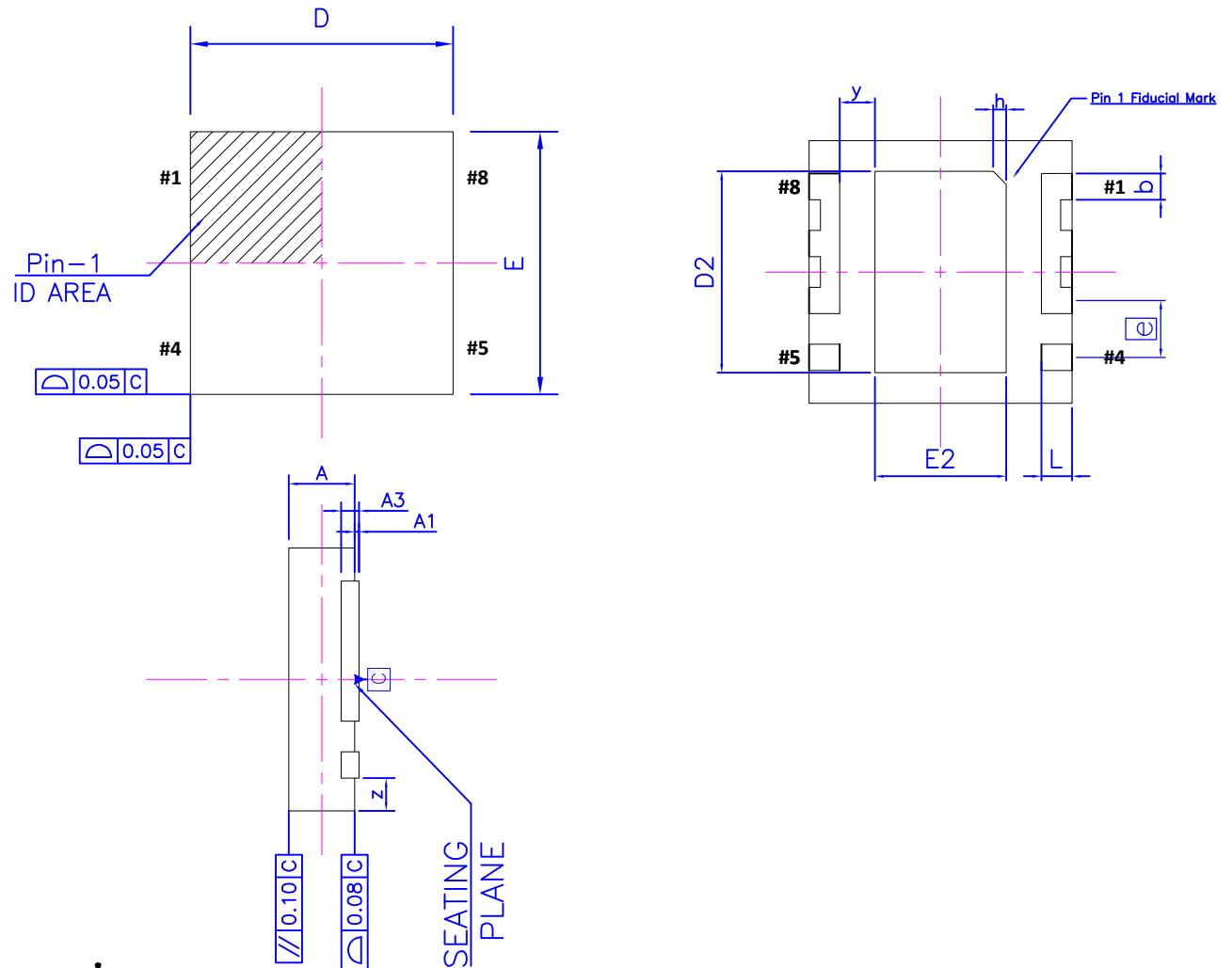
Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms



Package Information



Dimensions

Unit	D	E	D2	E2	A	A1	A3	b	e	h	L	y	z
mm	3.07 (3.00) 2.95	3.07 (3.00) 2.95	2.35 (2.30) 2.25	1.60 (1.50) 1.40	0.80 (0.75) 0.70	0.05 (0.02) 0.00	0.203 REF	0.35 (0.30) 0.25	0.65 BSC	0.15 REF	0.45 (0.35) 0.25	0.400 REF	0.375 REF