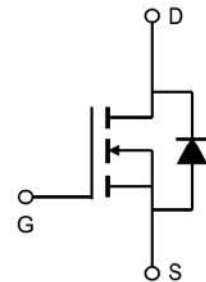
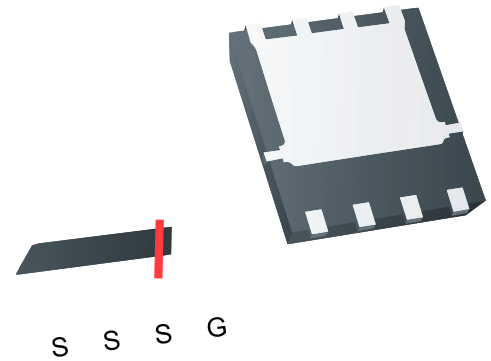


## Single N-Channel Enhancement Mode MOSFET

### Feature

- 40V/78A  
 $R_{DS(ON)} = 5.3\text{ m}\Omega$  (typ.) @  $V_{GS} = 10\text{V}$
- 100% Avalanche Tested
- 100% DVDS
- Reliable and Rugged
- MSL1 up to 260°C Peak Reflow
- AEC-Q101 Qualified
- 175°C  $\theta_{JA} = 9.96$   $T_f = 483.337(T) - 2.3535(1 - T)$

### Pin Description



-oduct and/or to this document at any time without notice.

## Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
<b>Common Ratings</b> (Tc=25°C Unless Otherwise Noted)			
V <sub>DSS</sub>	Drain-Source Voltage	40	V
V <sub>GSS</sub>	Gate-Source Voltage	+20 / -20	V
T <sub>J</sub>	Maximum Junction Temperature	-55 to 175	°C
T <sub>STG</sub>	Storage Temperature Range		

## Electrical Characteristics (Cont.) (T<sub>c</sub> =25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	HYA060N04NS1			Unit
			Min	Typ.	Max	
<b>Dynamic Characteristics</b>						

R<sub>G</sub>

## Typical Operating Characteristics

Figure 1: Power Dissipation

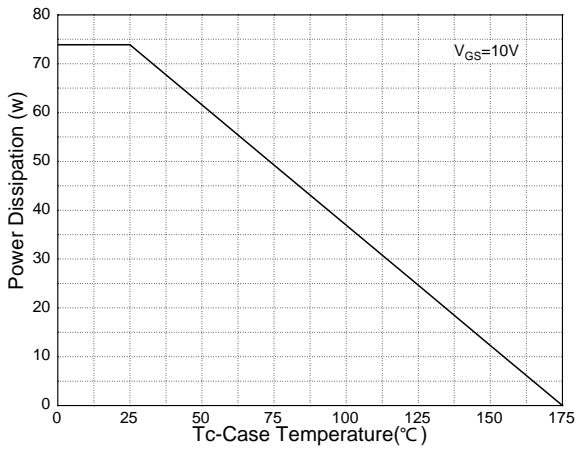


Figure 2: Drain Current

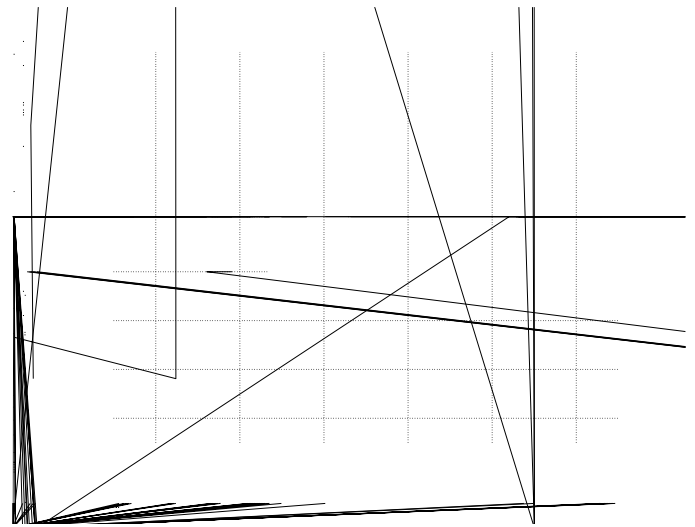


Figure 3: Safe Operation Area



Figure 4: Thermal Transient Impedance

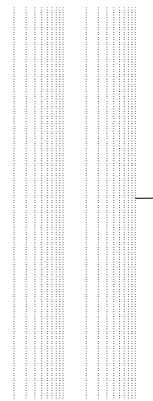


Figure 5: Output Characteristics

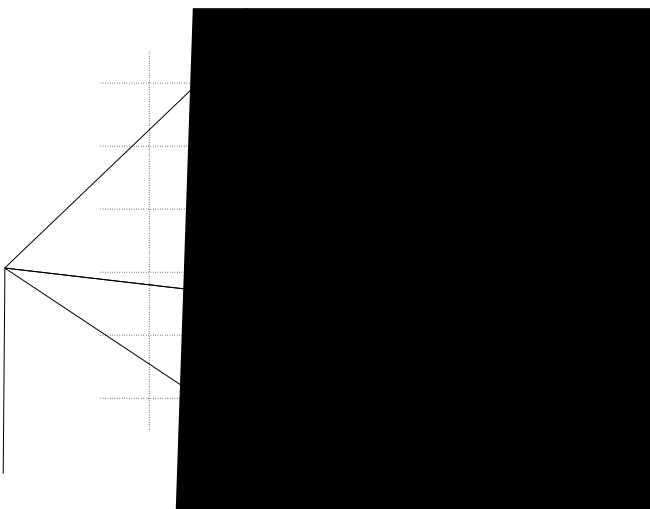
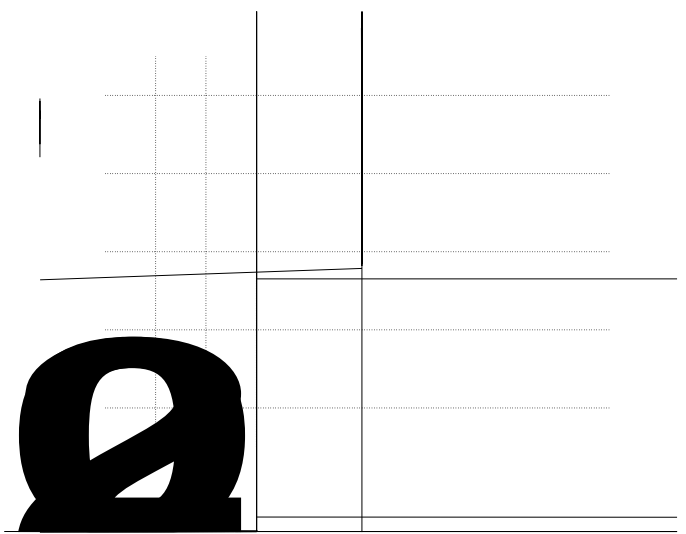


Figure 6: Drain-Source On Resistance



Typical Operating Characteristics(Cont.)

Figure 7: On-Resistance vs. Temperature

Figure 8: Source-Drain Diode Forward

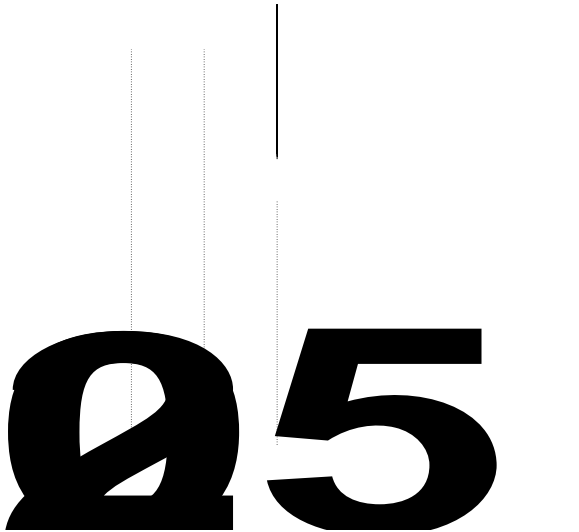


Figure 9: Capacitance Characteristics

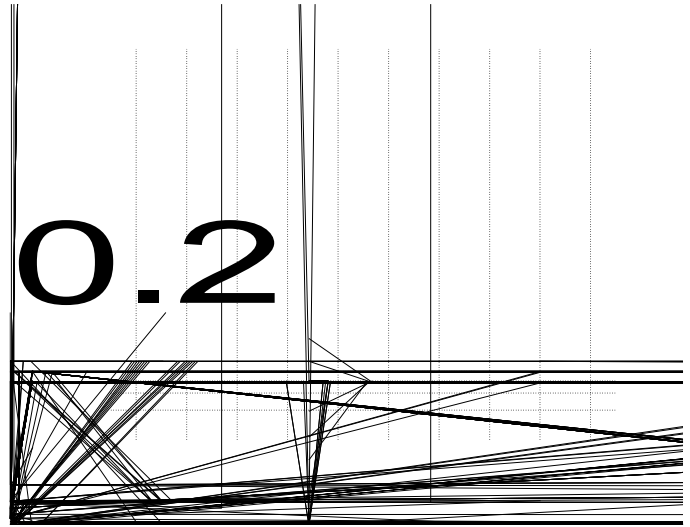


Figure 10: Gate Charge Characteristics

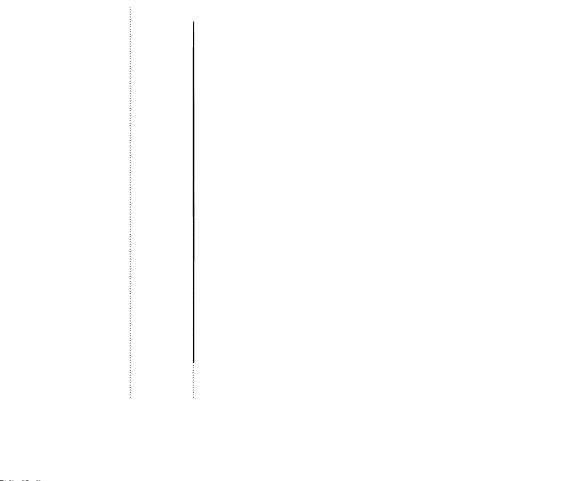
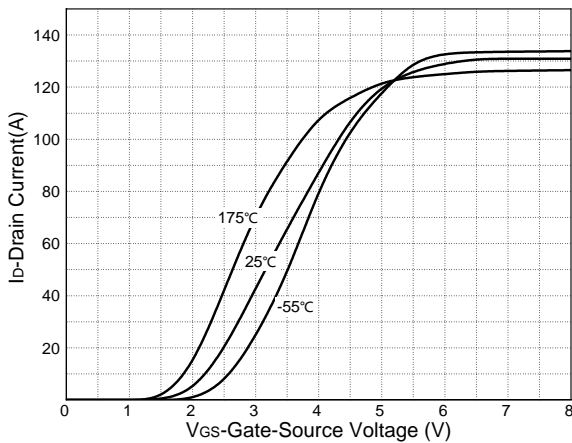


Figure 11: Transfer Characteristics



Figure 12: Gate Threshold Voltage



## Typical Operating Characteristics(Cont.)

Figure 13: Drain-Source Breakdown

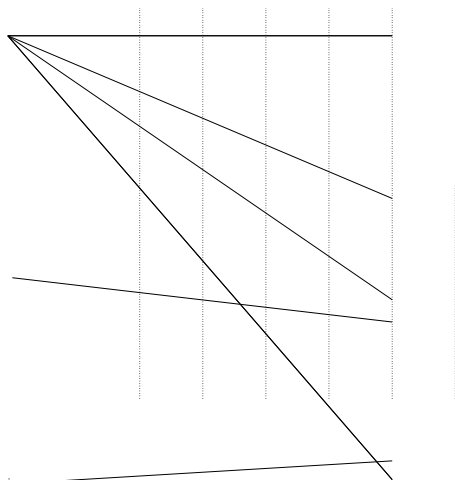


Figure 14:  $R_{dson}$  vs. Gate Voltage

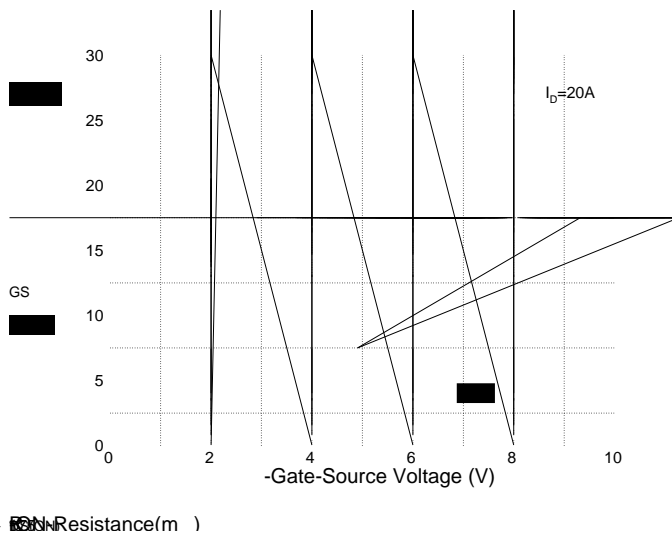
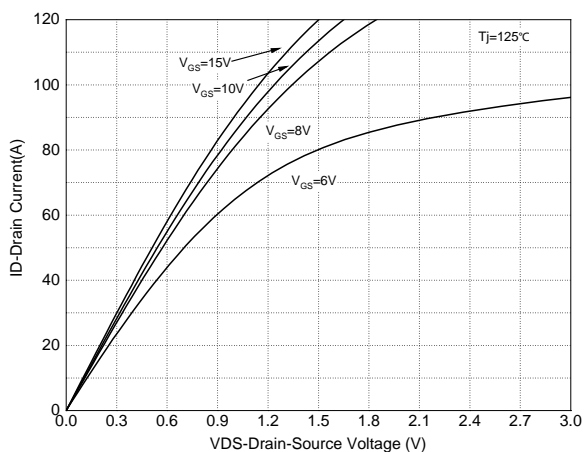
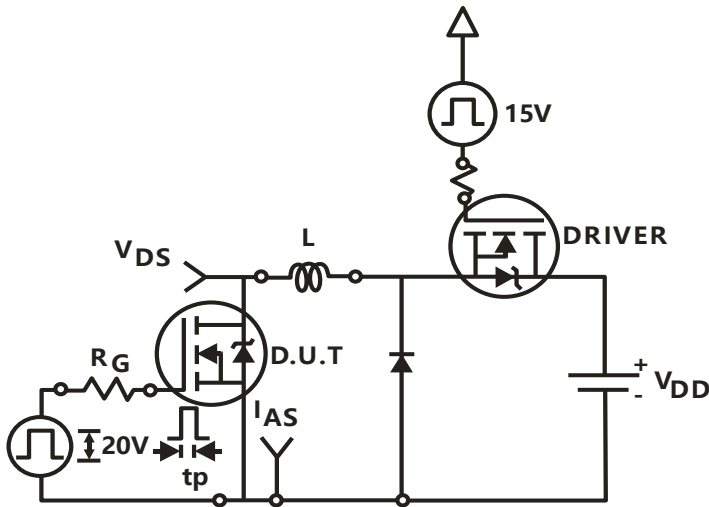


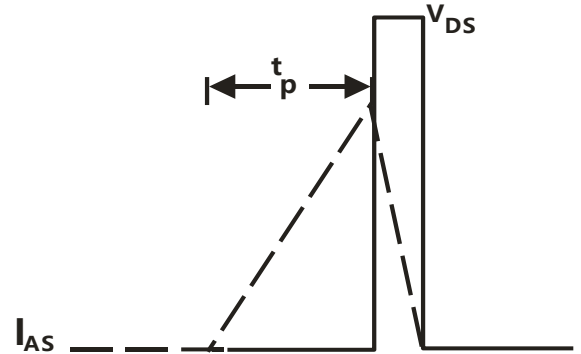
Figure 15: Output Characteristics 125



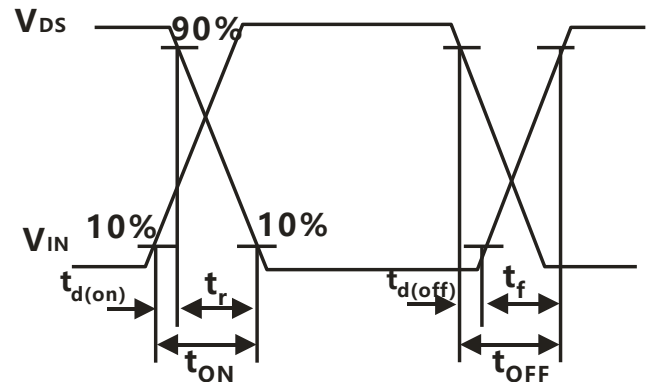
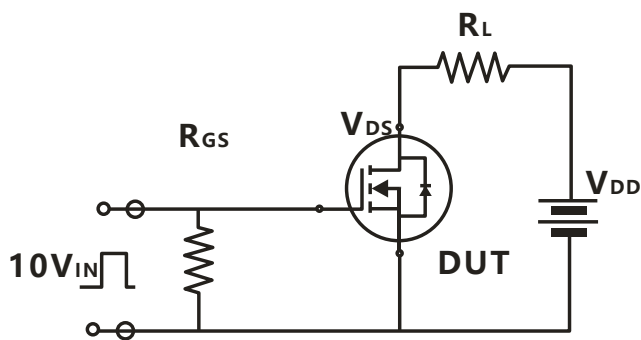
**Avalanche Test Circuit and Waveforms**



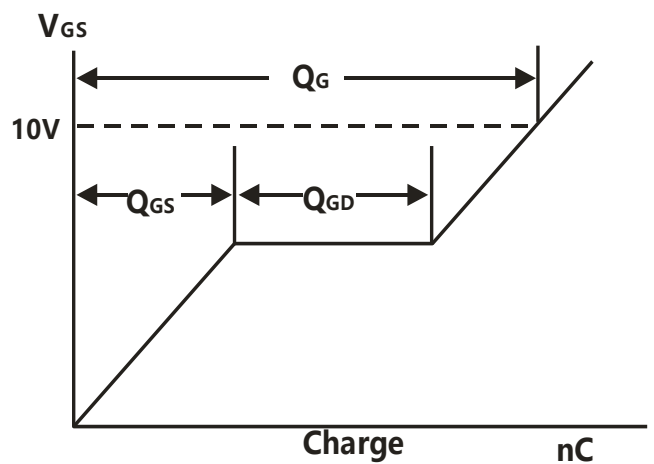
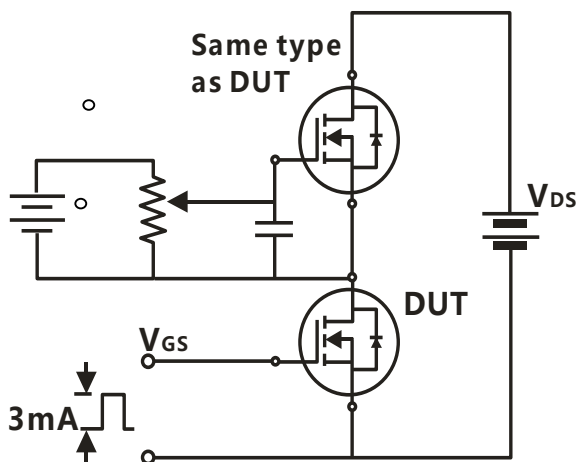
$$E_{AS} = \frac{1}{2} L I_{AS}^2$$



**Switching Time Test Circuit and Waveforms**



**Gate Charge Test Circuit and Waveforms**



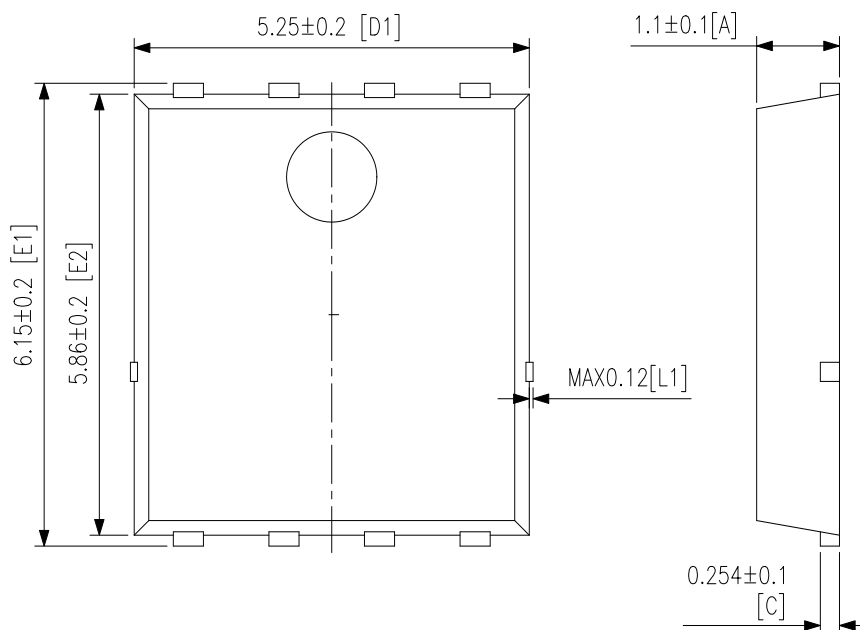
## Device Per Unit

Package Type	Unit	Quantity
PDFN8L(5x6)	Reel	5000

## Package Information

PDFN8L(5x6)

(unit:mm)





## Classification Profile

## Classification Reflow Profiles

<b>Profile Feature</b> Preheat & Soak	<b>Sn-Pb Eutectic Assembly</b>	<b>Pb-Free Assembly</b>
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Table 1.SnPb Eutectic Process – Classification Temperatures (Tc)

Package Thickness	Volume mm <350	Volume mm 350
2.5 mm	235 °C	220 °C
2.5 mm	220 °C	220 °C

Table 2.Pb-free Process – Classification Temperatures (Tc)

Package Thickness	Volume mm <350	Volume mm 350-2000	Volume mm 2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 mm – 2.5 mm	260 °C	250 °C	245 °C
2.5 mm	250 °C	245 °C	245 °C

## Reliability Test Program

Test item	Method	Description
PCT	JESD22-A102	121 ,100%RH, 96hours, 205KPa
TCT	JESD22-A104	250/500/1000 Cycles, -55°C~150°C
HTRB	JESD22-A108B	168/500/1000 Hrs, 100% BV <sub>DSS</sub> @ 175
HTGB	JESD22-A108B	168/500/1000 Hrs, 100%V <sub>gs</sub> @ 175
BHAST	JESD22-A110D	130 85%RH 230KPA;U=32V
IOL	MIL-STD-750	Ta=25 , Tj 100 , Ton/Toff 2min 15000cycles

### Customer Service

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Technical Support: Technology@hymexa.com

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