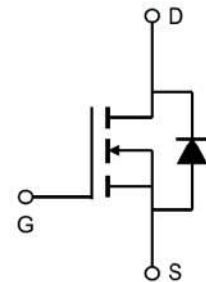


Single N-Channel Enhancement Mode MOSFET

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 oTJETBT2*48.5BT93912and

Pin Description



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

Absolute Maximum Ratings

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

HYA060N04NS1			Unit
n	Typ.	Max	

Typical Operating Characteristics

Figure 1: Power Dissipation

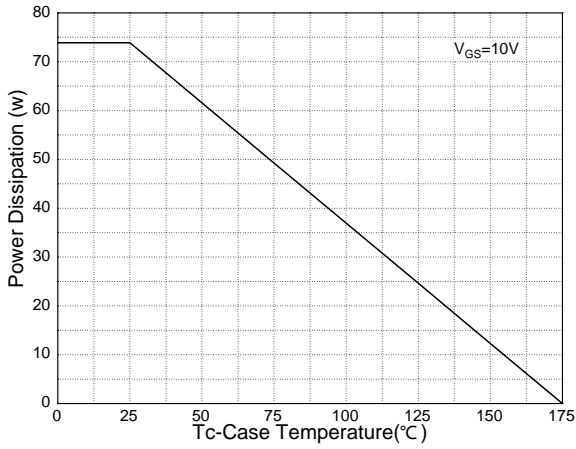


Figure 2: Drain Current

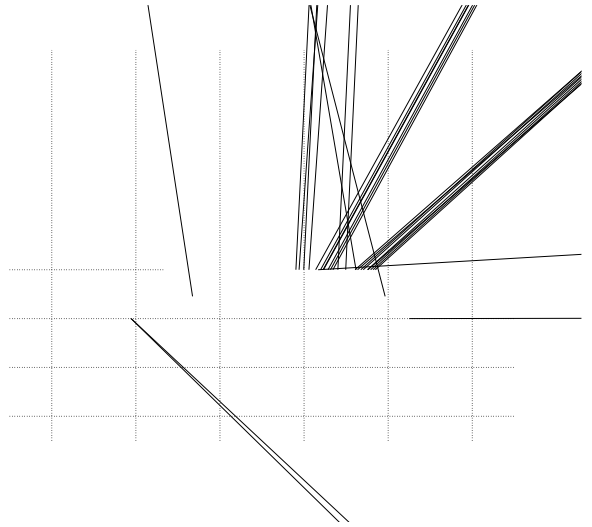


Figure 3: Safe Operation Area



Figure 4: Thermal Transient Impedance

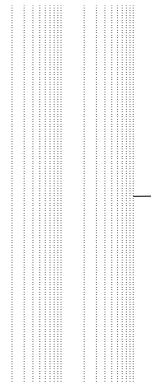


Figure 5: Output Characteristics

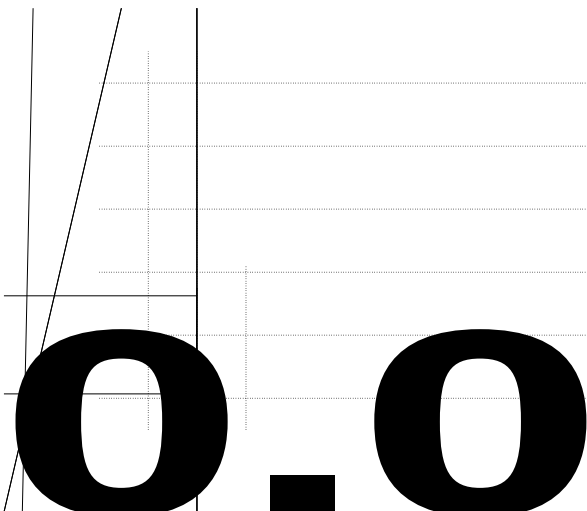
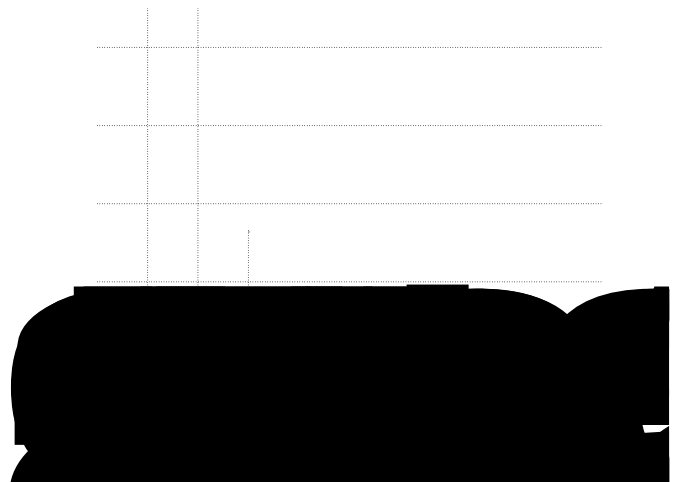


Figure 6: Drain-Source On Resistance



Typical Operating Characteristics(Cont.)

Figure 7: On-Resistance vs. Temperature

Figure 8: Source-Drain Diode Forward

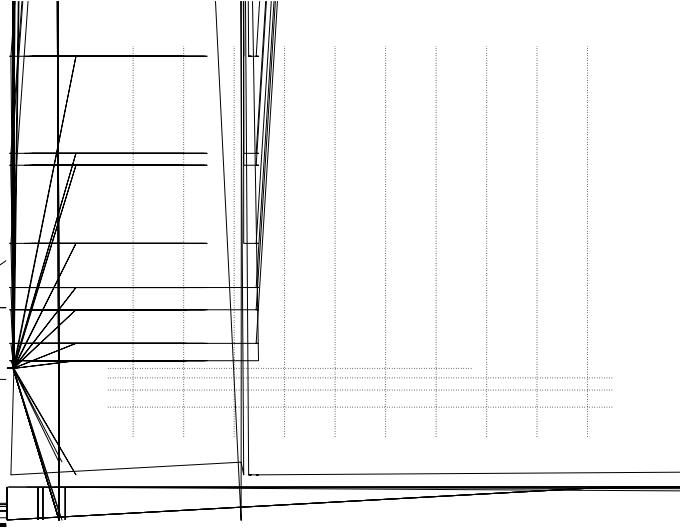
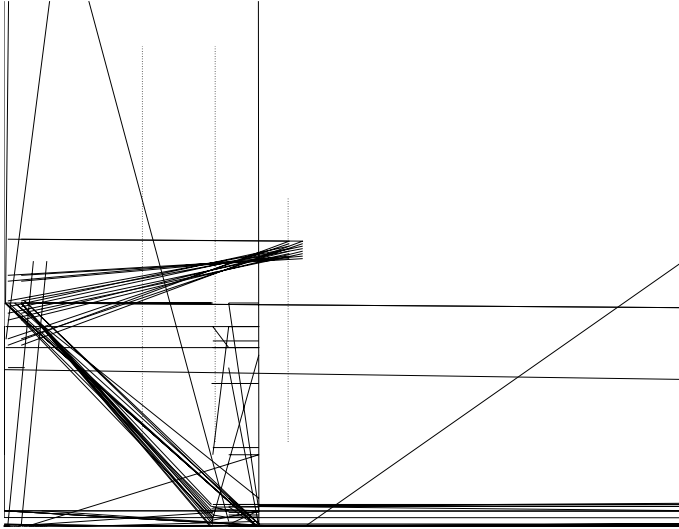


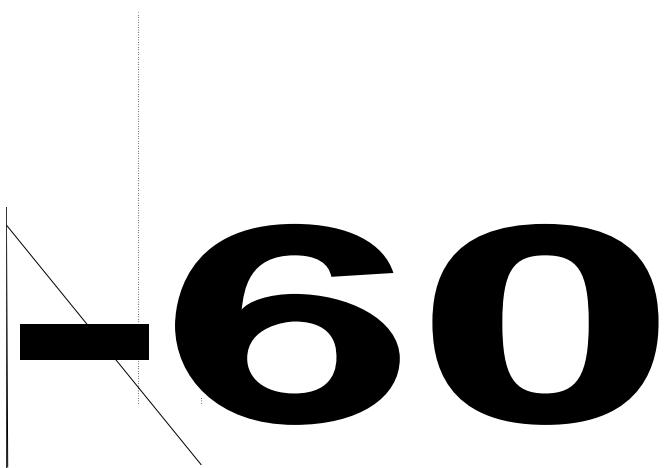
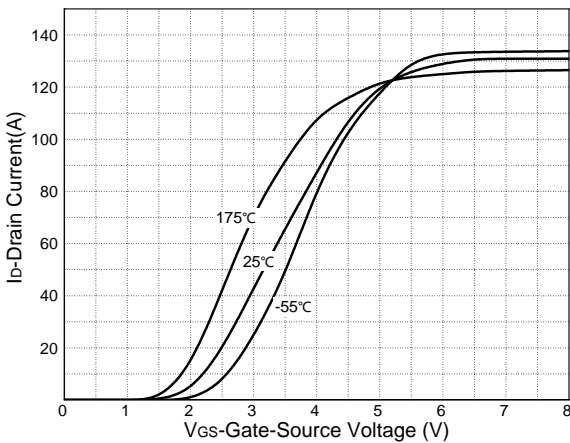
Figure 9: Capacitance Characteristics

Figure 10: Gate Charge Characteristics



Figure 11: Transfer Characteristics

Figure 12: Gate Threshold Voltage



Typical Operating Characteristics(Cont.)

Figure 13: Drain-Source Breakdown

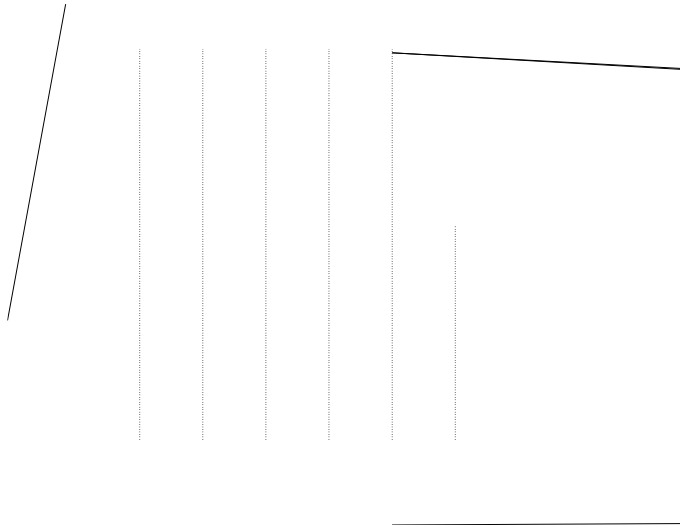


Figure 14: R_{dson} vs. Gate Voltage

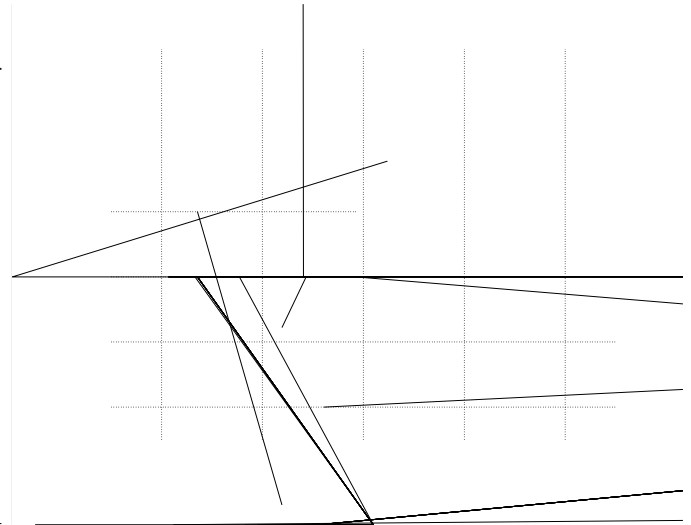
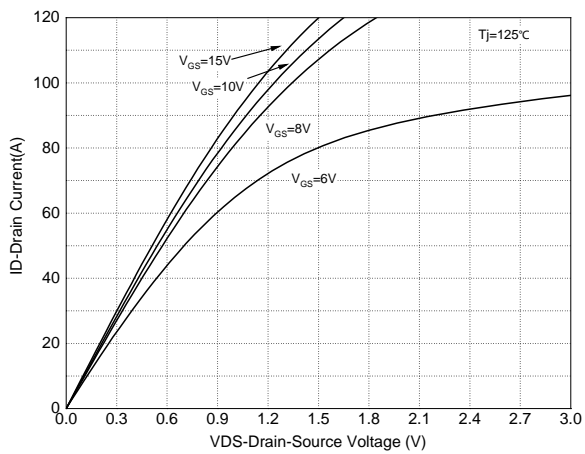
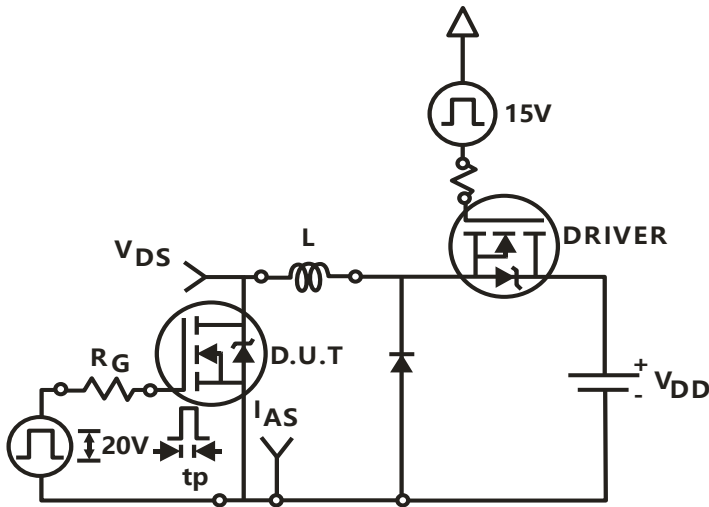


Figure 15: Output Characteristics 125

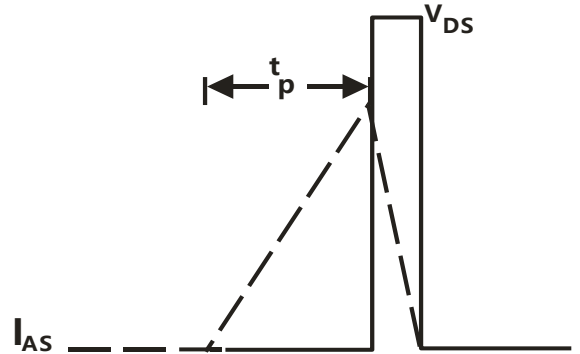


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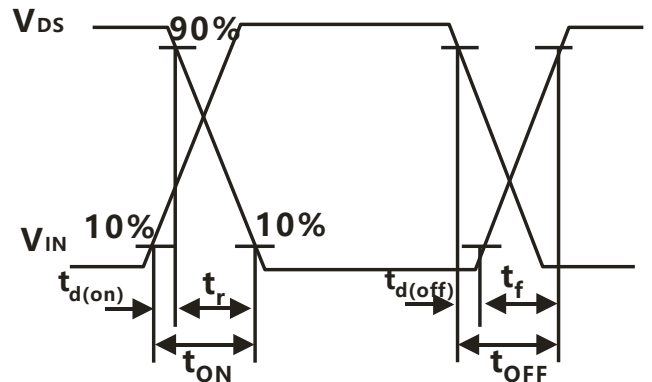
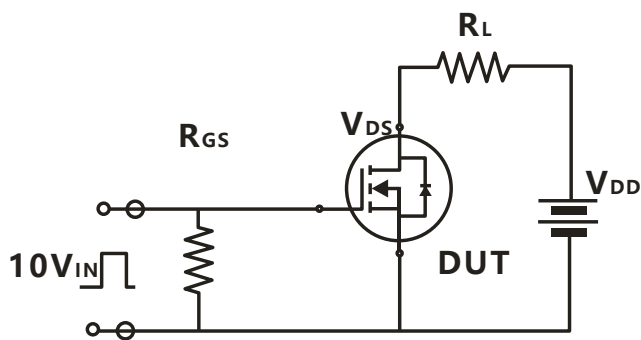
Avalanche Test Circuit and Waveforms



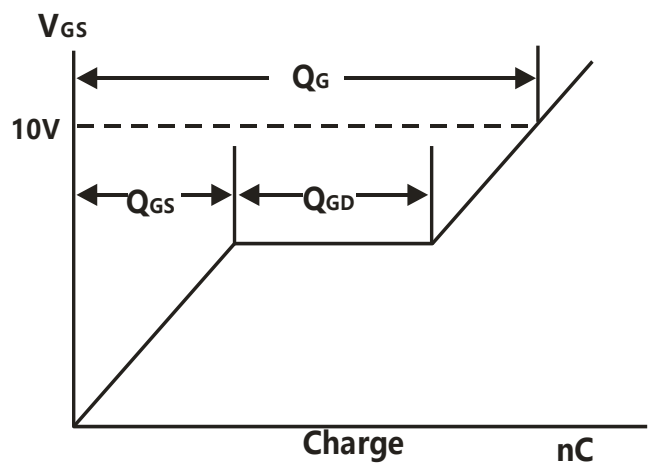
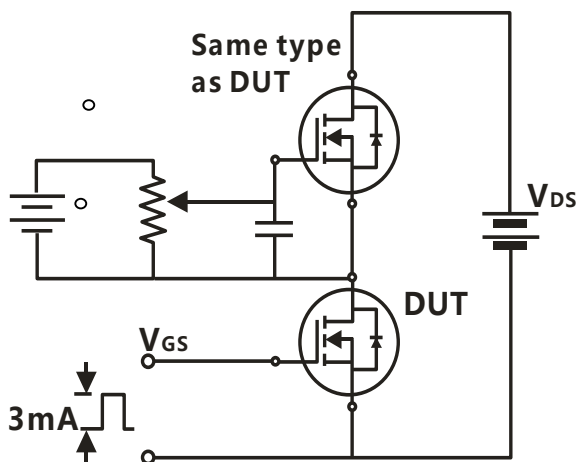
$$E_{AS} = \frac{1}{2} L I_{AS}^2$$



Switching Time Test Circuit and Waveforms



Gate Charge Test Circuit and Waveforms



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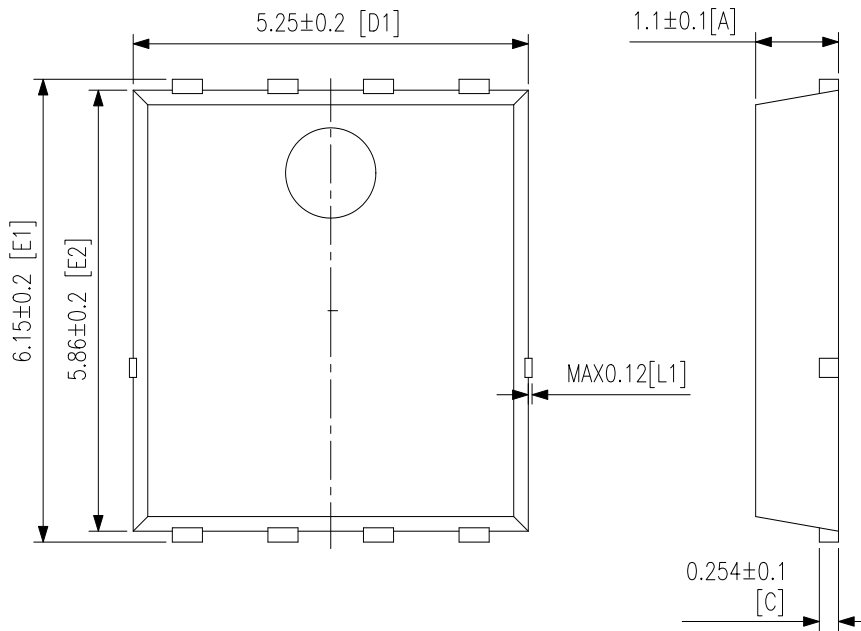
Device Per Unit

Package Type	Unit	Quantity
PDFN8L(5x6)	Reel	5000

Package Information

PDFN8L(5x6)

(unit:mm)



Classification Profile

Classification Reflow Profiles

Profile Feature Preheat & Soak	Sn-Pb Eutectic Assembly	Pb-Free Assembly
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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 _{DSS} @ 175
HTGB	JESD22-A108B	168/500/1000 Hrs, 100%V _{gs} @ 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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