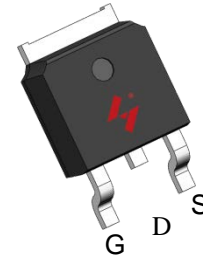


Single N-Channel Enhancement Mode MOSFET

Feature

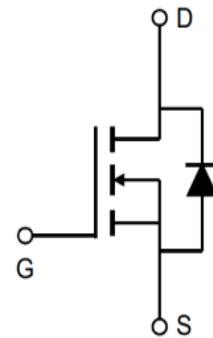
- 30V/100A
- $R_{DS(ON)} = 2.3 \text{ m}\Omega(\text{typ.}) @ V_{GS} = 10\text{V}$
- $R_{DS(ON)} = 3.0 \text{ m}\Omega(\text{typ.}) @ V_{GS} = 4.5\text{V}$
- 100% Avalanche Tested
- Reliable and Rugged
- Halogen- Free Devices Available

Pin Description




Applications

- Battery Protection
- DC-DC Converters



Single N-Channel MOSFET

Ordering and Marking Information

 D G024N03 XYMXXXXXX	Package Code D: TO-252-2L Date Code XYMXXXXXX
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Note: HUAYI lead-free products contain molding compounds/die attach materials and 100% matte tin plate Termination finish; which are fully compliant with RoHS. HUAYI lead-free products meet or exceed the lead-free requirements of IPC/JEDEC J-STD-020 for MSL classification at lead-free peak reflow temperature. HUAYI defines “Green” to mean lead-free (RoHS compliant) and halogen free (Br or Cl does not exceed 900ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500ppm by weight).

HUAYI reserves the right to make changes, corrections, enhancements, modifications, and improvements to this product and/or to this document at any time without notice.

HYG024N03LR1D

Electrical Characteristics (Cont.) (Tc =25 Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	HYG024N03LR1			Unit
			Min	Typ.	Max	
Dynamic Characteristics						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	2.8	-	
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =25V, Frequency=1.0MHz	-	3918	-	pF
C _{oss}	Output Capacitance					
C _{rss}	Reverse Transfer Capacitance					
t _{d(ON)}	Turn-on Delay Time	V _{DD} =24V, R _G =4Ω, I _{DS} =20A, V _{GS} =10V	-	10.6	-	ns
T _r	Turn-on Rise Time					
t _{d(OFF)}	Turn-off Delay Time					
T _f	Turn-off Fall Time					
Gate Charge Characteristics						
Q _g	Total Gate Charge (V _{GS} =10V)	V _{DS} =24V, I _D =20A	-	86.8	-	nC
Q _g	Total Gate Charge (V _{GS} =4.5V)					
Q _{gs}	Gate-Source Charge					
Q _{gd}	Gate-Drain Charge					

Note: *Pulse test (Pulse width ≤ 300us, Duty cycle ≤ 2%)

Typical Operating Characteristics

Figure 1: Power Dissipation

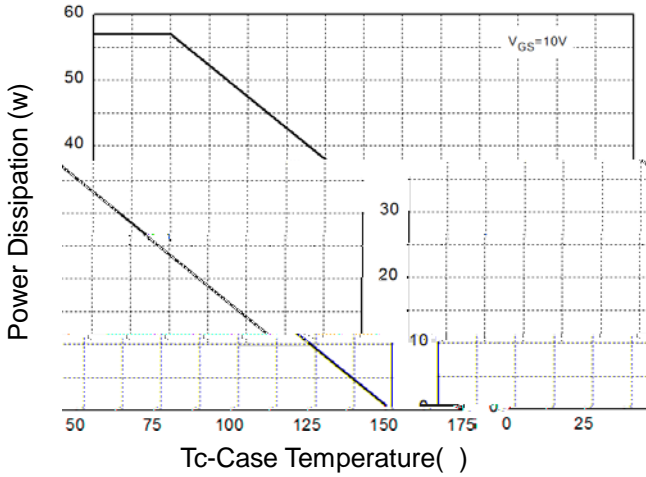


Figure 2: Drain Current

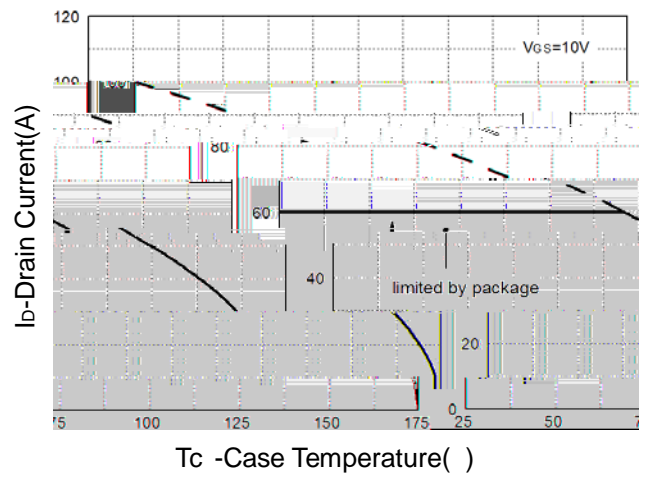


Figure 3: Safe Operation Area

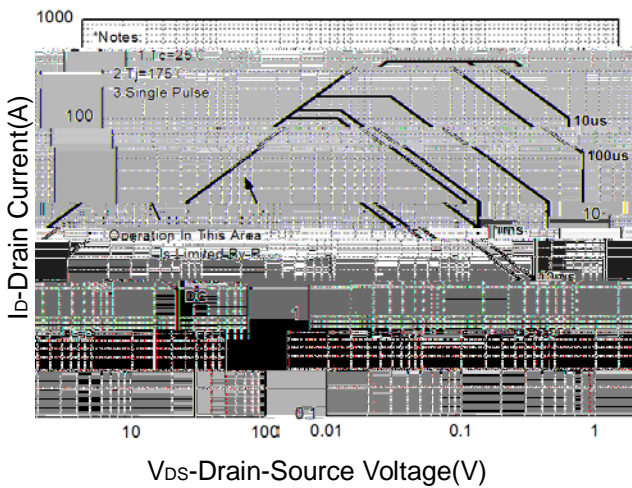


Figure 4: Thermal Transient Impedance

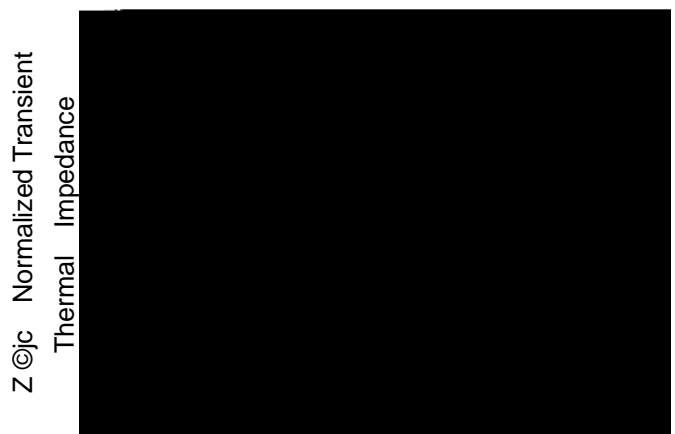


Figure 5: Output Characteristics

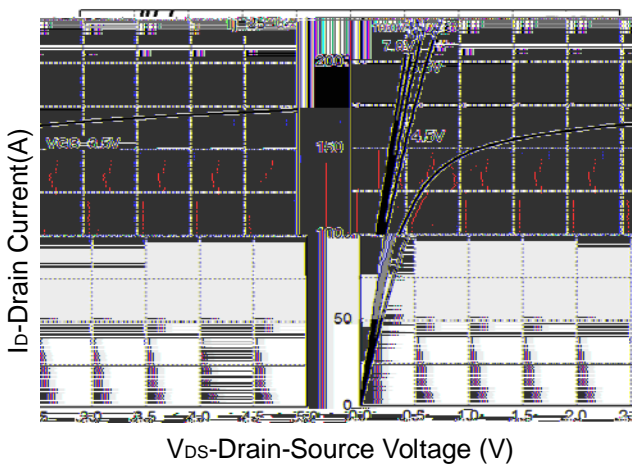
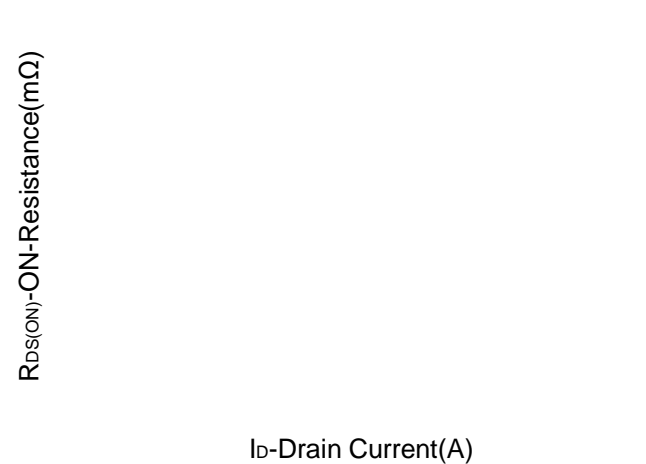


Figure 6: Drain-Source On Resistance



Typical Operating Characteristics(Cont.)

Figure 7: On-Resistance vs. Temperature

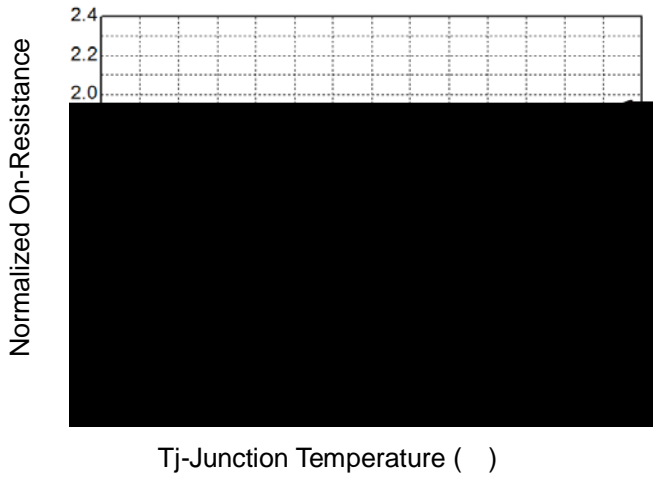


Figure 8: Source-Drain Diode Forward

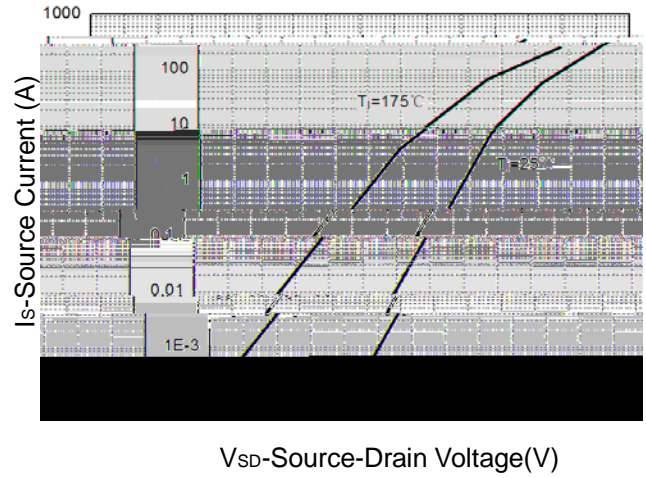


Figure 9: Capacitance Characteristics

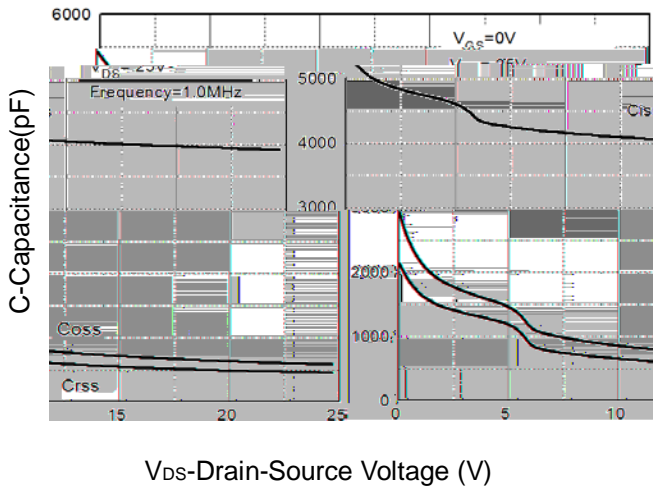
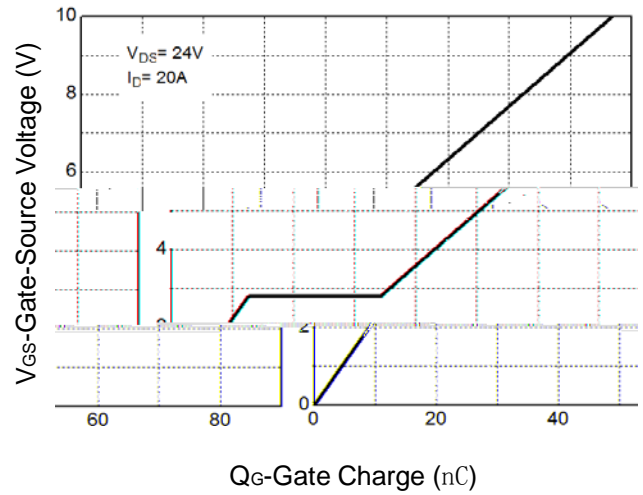
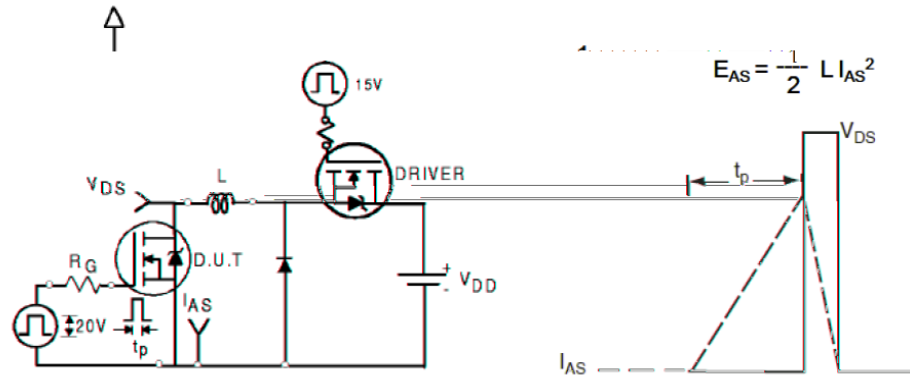


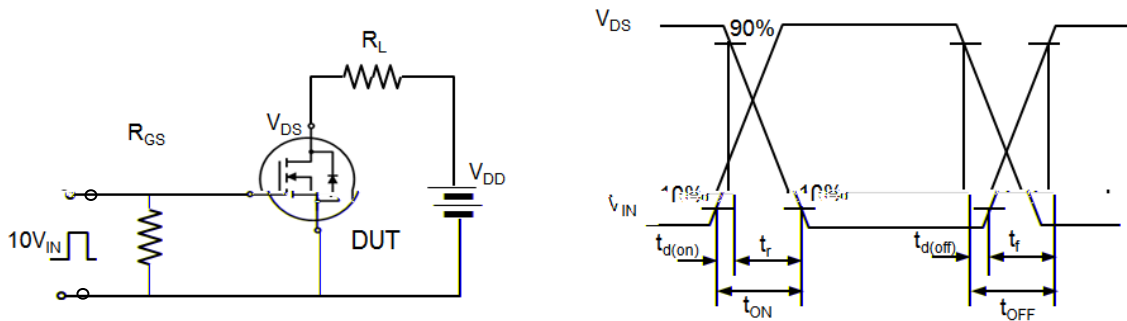
Figure 10: Gate Charge Characteristics



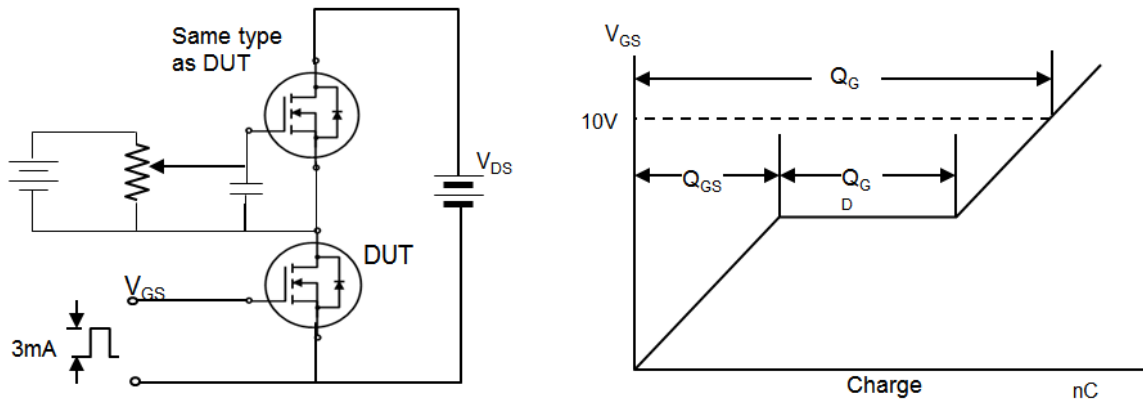
Avalanche Test Circuit



Switching Time Test Circuit



Gate Charge Test Circuit



Device Per Unit

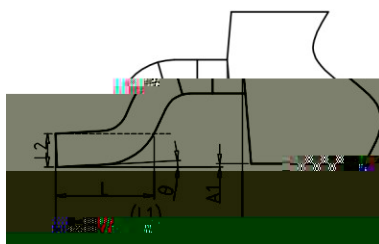
Package Type	Unit	Quantity
TO-252-2L	Tube	75
TO-252-2L	Reel	2500

Package Information

TO-252-2L

COMMON DIMENSIONS

SYMBOL	mm		
	MIN	NOM	MAX
A	2.20	2.30	2.40
A1	0.00	-	0.20
A2	0.97	1.07	1.17
b	0.68	0.78	0.90
b3	5.20	5.33	5.50
c	0.43	0.53	0.63
D	5.98	6.10	6.22
D1	5.30REF		
E	6.40	6.60	6.80
E1	4.63	-	-
e	2.286BSC		
H	9.40	10.10	10.50
L	1.38	1.50	1.75
L1	2.90REF		
L2	0.51BSC		
L3	0.88	-	1.28
L4	-	-	1.00
L5	1.65	1.80	1.95
θ	0°	-	8°



Classification Profile

Classification Reflow Profiles

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly Pb

Table 1.SnPb Eutectic Process – Classification Temperatures (Tc)

Package Thickness	Volume mm ³ <350	Volume mm ³ 1 350
Ø2.5 mm	235	220
≥2.5 mm	220	220

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

Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ 1 2000
<1.6 mm	260	260	260
1.6 mm – 2.5 mm	260	250	245
12.5 mm	250	245	245

Reliability Test Program

Test item	Method	Description
SOLDERABILITY	JESD-22, B102	5 Sec, 245
HTRB	JESD-22, A108	168 Hrs /500 Hrs /1000 Hrs, Bias @ 150
PCT	JESD-22, A102	96 Hrs, 100%RH, 2atm, 121
TCT	JESD-22, A104	500 Cycles, -55 ~150

Customer Service

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Technical Support:Technology@hymexa.com

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