# 20V N-Channel Enhancement Mode MOSFET

## Description

The NP2040D3 uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge.It can be used in a wide variety of applications.

## General Features

- $V_{DS}$ and low 2( E)-1(58-0.002 T200.09 Tw 1.64 0 BDC 008B 0 15 51.77 <</Att<02C8 1.011 0 Td (V TwC -0.004 Tc 0.004 Tw 7.65 92.82 DS)-4(()-4(O)53.222<</MCID 295

| | Storage Temperature | Package | Devices Per Reel |
|---|---|---|---|
| NP2040D3-G | -55°C to +150°C | PDFN3.3*3.3-8L | 5000 |

## Absolute Maximum Ratings (TA=25 unless otherwise noted)

| parameter | symbol | limit | unit |
|---|---|---|---|
| Drain-source voltage | $V_{DS\ 0\ Td\ (20)Tj\ 0\ 0}$ | 20 | |

## Electrical Characteristics (TA=25 unless otherwise noted)

| Parameter | Symbol | Condition | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| **Static Characteristics** | | | | | | | |
| Drain-source breakdown voltage | $BV_{DSS}$ | $V_{GS}$=0V, $I_D$=250μA | | 20 | - | - | V |
| Zero gate voltage drain current | $I_{DSS}$ | $V_{DS}$=20V, $V_{GS}$=0V | $T_J$=25°C | - | - | 1 | μA |
| | | | $T_J$=85°C | - | - | 5 | |
| Gate Leakage Current | $I_{GSS}$ | $V_{DS}$=0V, $V_{GS}$=±12V | | - | - | ±100 | nA |

## Typical Performance Characteristics

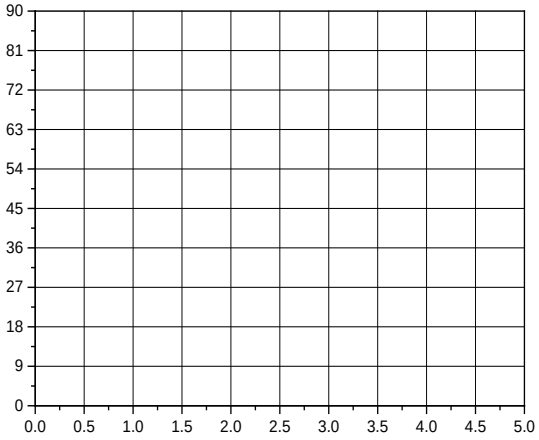



**Fig1 Output Characteristics**

**Fig2 Transfer Characteristics**

**Fig3 Rdson-Drain current**

**Fig4 Capacitance vs Vds**

**Fig5 Rdson-Gate Drain voltage**

**Fig6 Gate Charge**

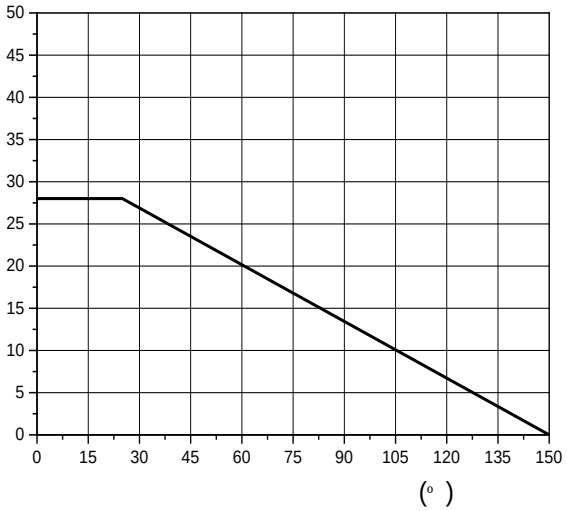



**Fig7 Power De-rating**

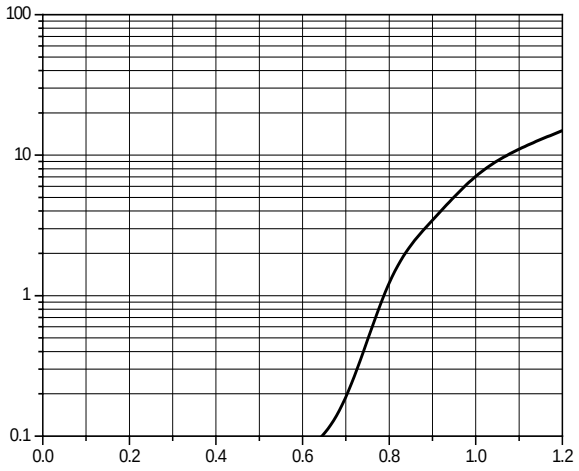
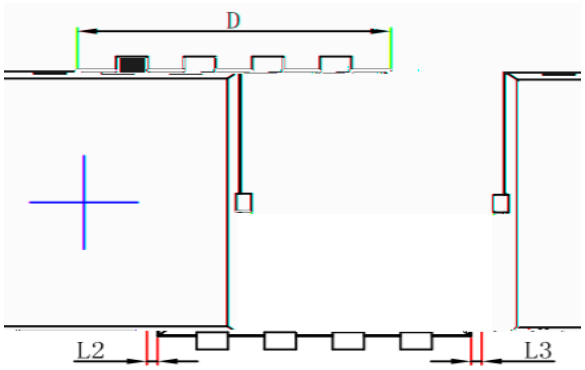
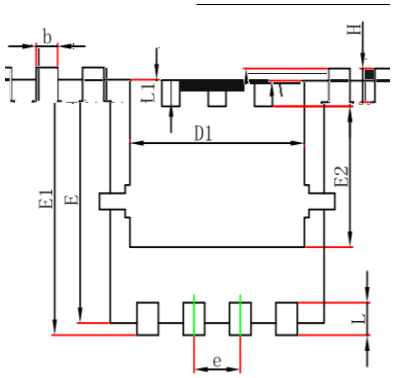


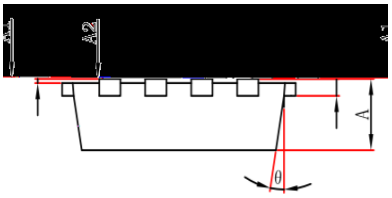

**Fig8 Source-Drain Diode Forward**

## Package Information

- **PDFN3.3*3.3-8L**




| | | | | |
|---|---|---|---|---|
| | 2.600 | 0.091 | 0.102 | |
| | | | 0.122 | |
| | 3.150 | 3.450 | 0.124 | 0.136 |
| | 1.535 | 1.935 | 0.060 | 0.076 |
| | 0.400 | 0.008 | 0.016 | b 0.200 |
| 0.022 | 0.030 | e | 0.550 | 0.750 |
| | | | | |
| | L2 | | | 0~0.004 |
| L3 | | 0~0.100 | | 0~0.004 |
| | | | | |
| θ | 9° | 13° | 9° | 13° |