



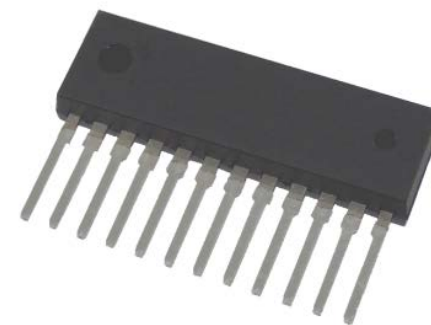
Working Together for a Greener Society

Future of Power Electronics and the Earth



3-phase Motor Drive Arrays

SMA5145, SMA5146



■ Overview

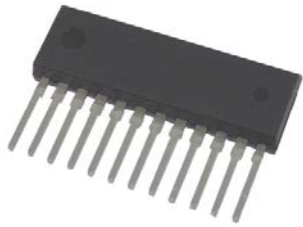
The SMA5145 and SMA5146 are MOSFET arrays for 3-phase brushless DC motors. The products incorporate 6 N-channel power MOSFETs with low on-resistance ideal for 3-phase inverter circuits, and come in a compact SIP12 package.

Compared to a configuration using 6 discrete parts, this series will not only decrease its mounting area on a PCB but also contribute to lower mounting workloads and higher reliability.

Suitable applications include fan motor drivers for home appliances, where size reduction is a key focus.

■ Package

SIP12

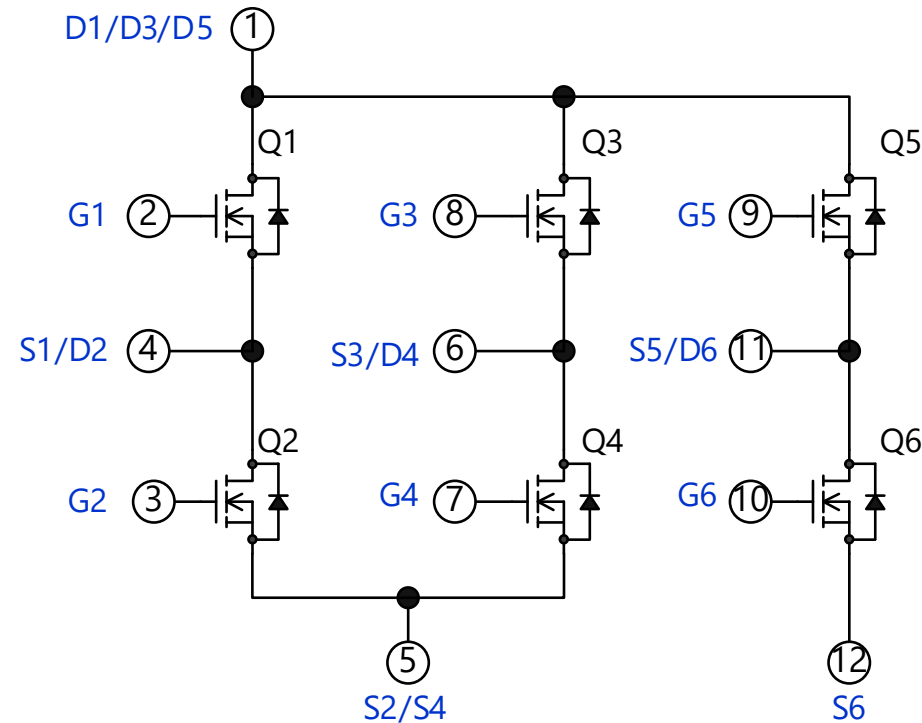


■ Application

- 3-phase brushless DC motor driver (e.g., air conditioner, air purifier)



■ Internal Circuit Diagram



■ Features

- Built-in 3 half-bridge circuits
- Built-in 500 V N-channel power MOSFETs
- Low on-resistance
- Bare lead frame: Pb-free (RoHS compliant)

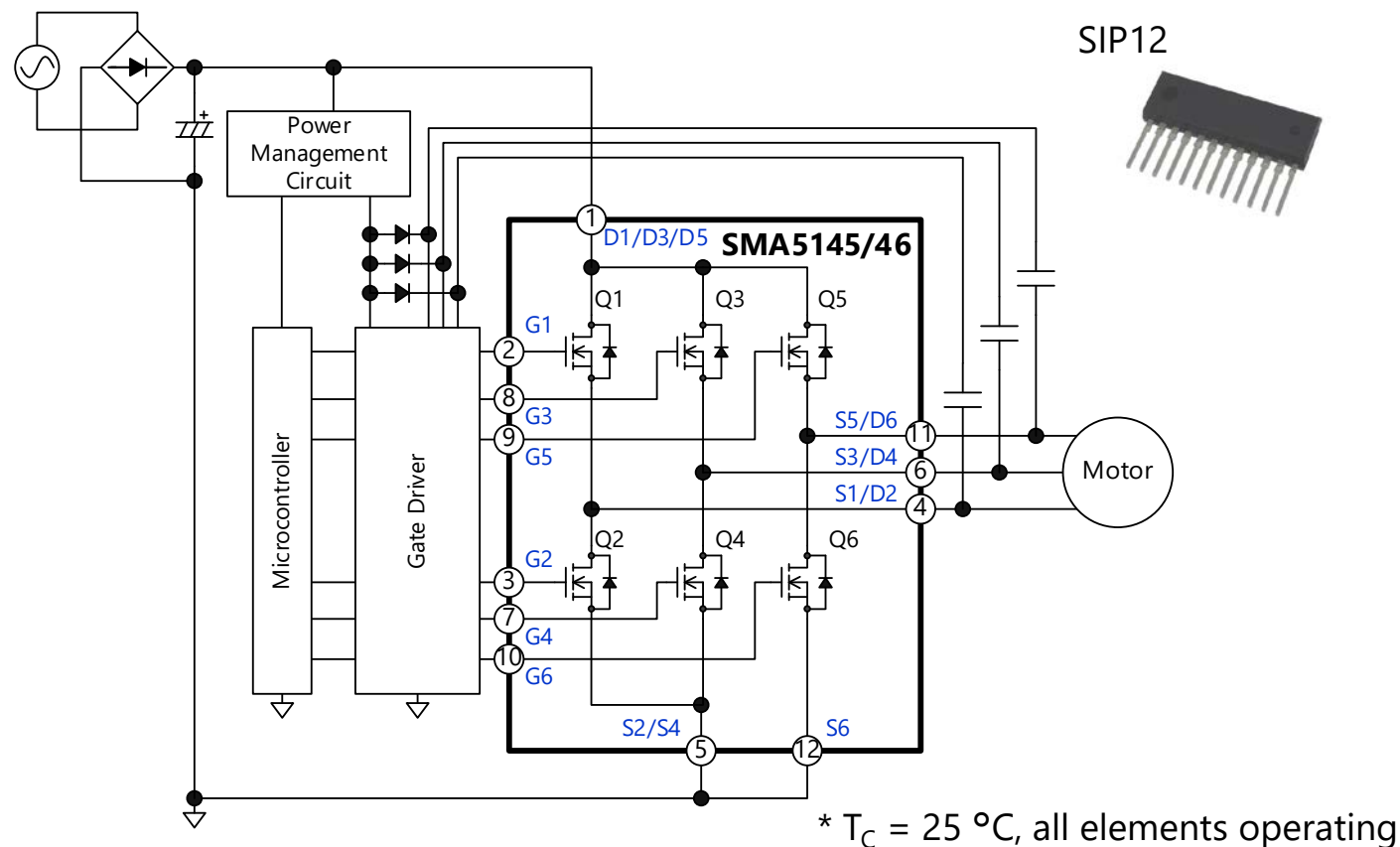
■ Typical Characteristics

- $V_{(BR)DSS} = 500 \text{ V}$ ($I_D = 100 \mu\text{A}$)
- $I_D = 1.5 \text{ A} / 2.5 \text{ A}$
(SMA5145 / SMA5146)
- $R_{DS(ON)} = 4.0 \Omega$ (max.) $\Omega / 2.4 \Omega$ (max.)
(SMA5145 / SMA5146)

■ Selection Guide

Part Number	$V_{(BR)DSS}$ ($I_D = 100 \mu\text{A}$)	I_D	$R_{DS(ON)}$ (max.)	t_{rr} (typ.)	P_D^*
SMA5145	500 V	1.5 A	4.0 Ω	75 ns	28 W
SMA5146	500 V	2.5 A	2.4 Ω	75 ns	28 W

■ Typical Application



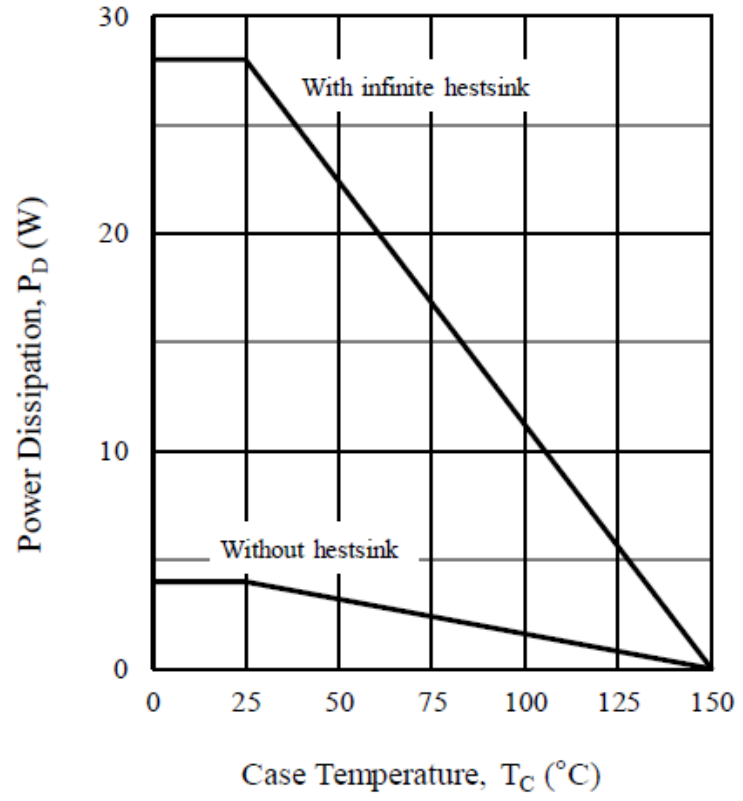


Figure 1. P_D vs. T_C

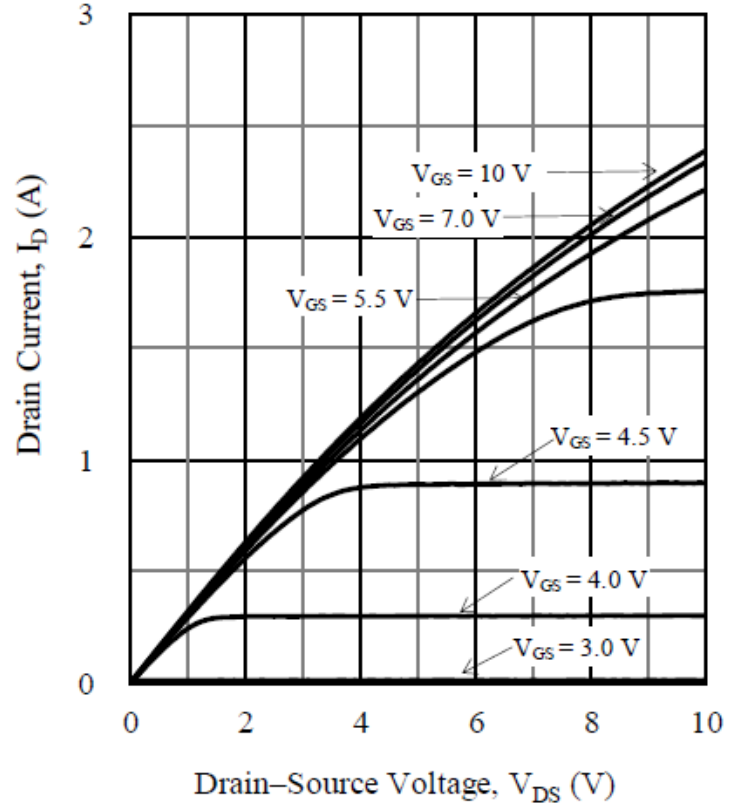


Figure 2. Typical Characteristics: I_D vs. V_{DS} ($T_J = 25^\circ C$)

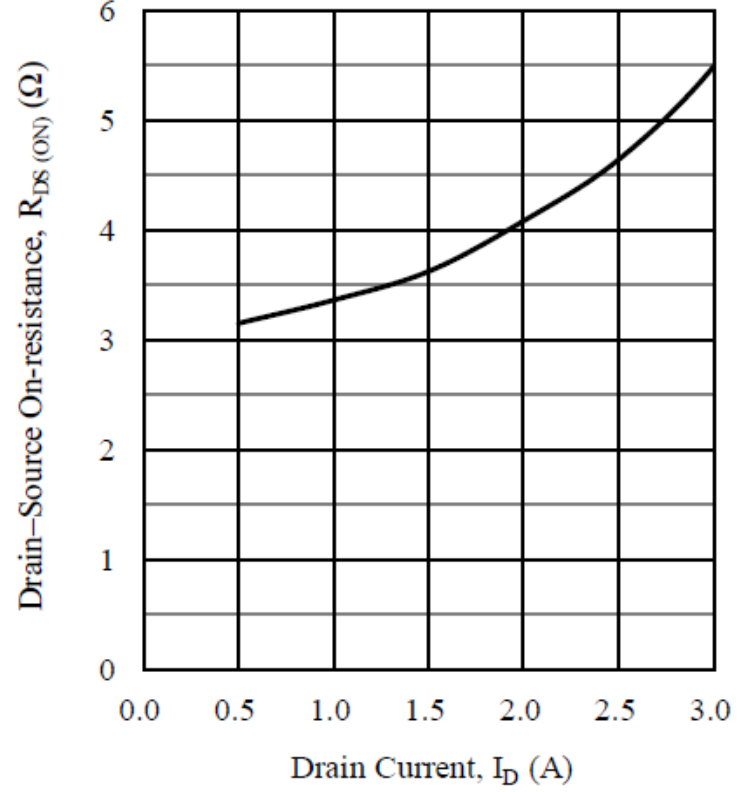


Figure 3. Typical Characteristics: $R_{DS(ON)}$ vs. I_D ($V_{GS} = 10V$, $T_J = 25^\circ C$)

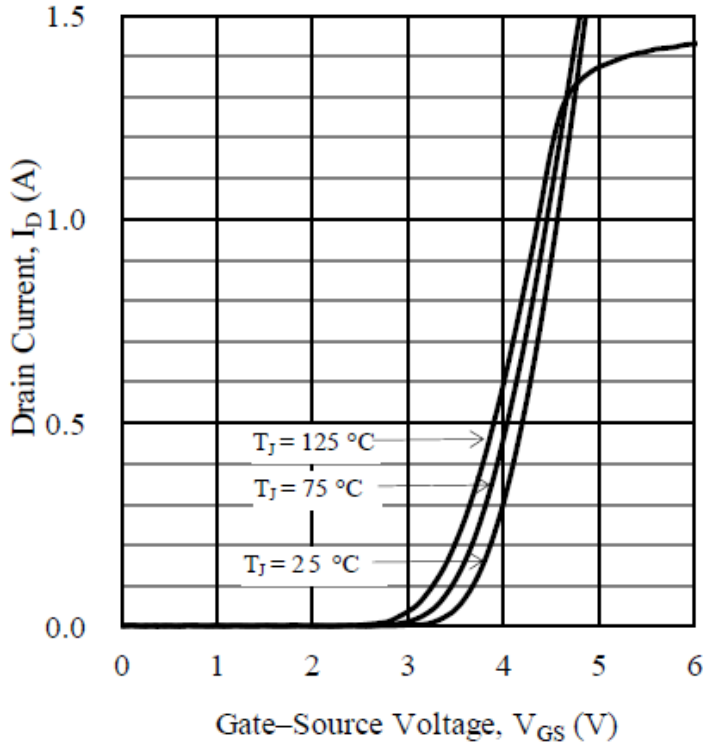


Figure 4. Typical Characteristics:
 I_D vs. V_{GS} ($V_{DS} = 10$ V)

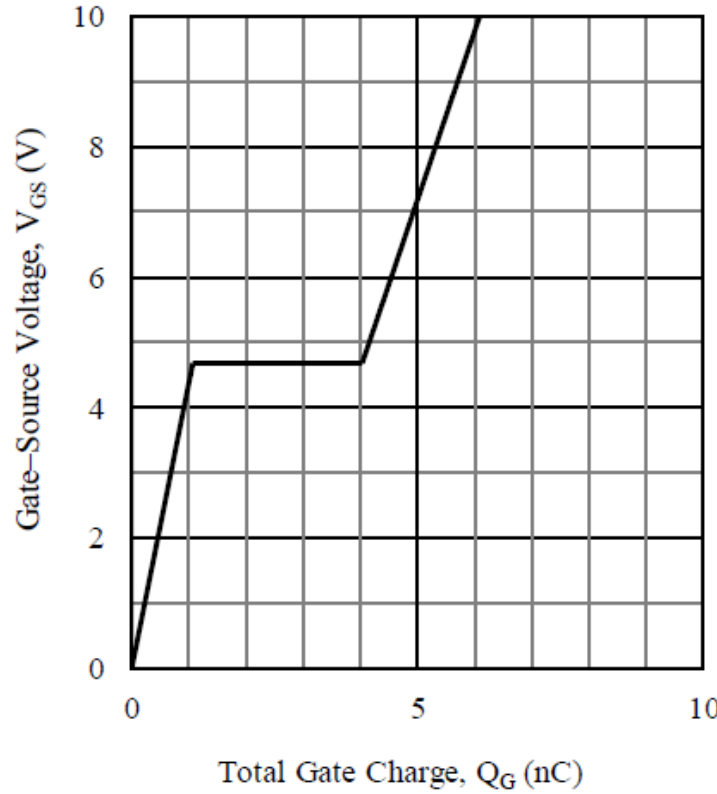


Figure 5. Typical Characteristics:
 V_{GS} vs. Q_G ($I_D = 1.0$ A, $V_{DD} = 10$ V)

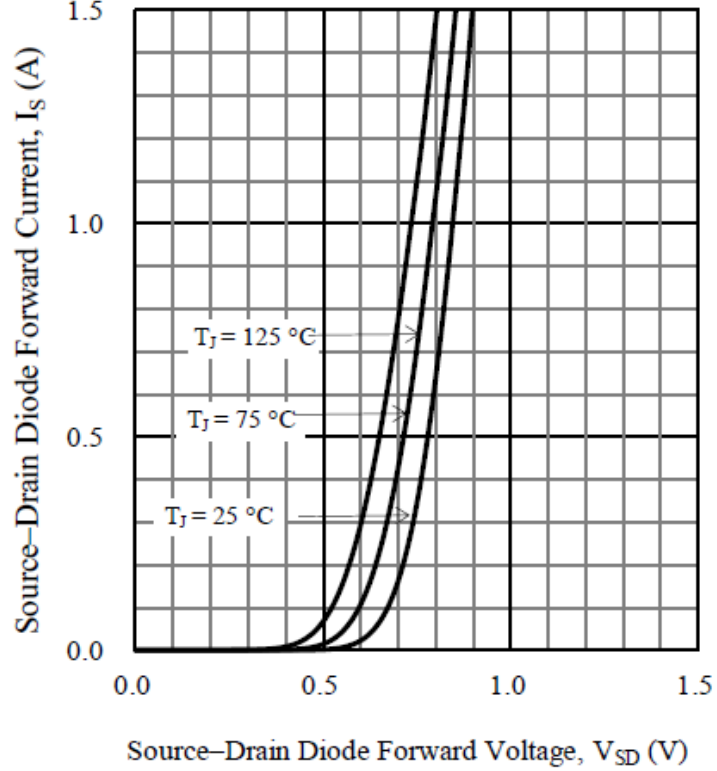


Figure 6. Typical Characteristics:
 I_S vs. V_{SD} ($V_{GS} = 0$ V)

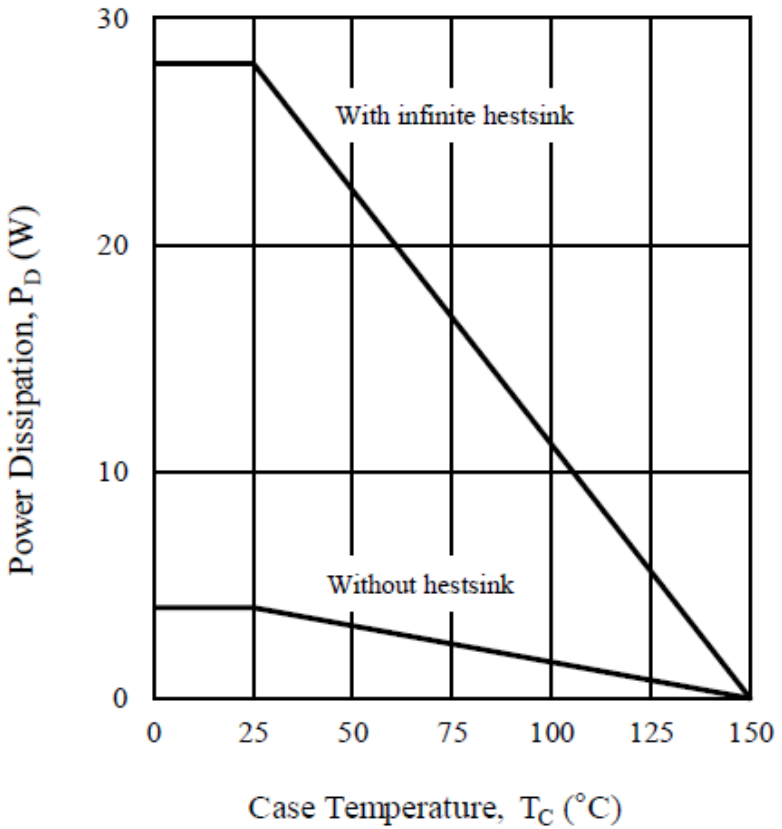


Figure 1. P_D vs. T_C

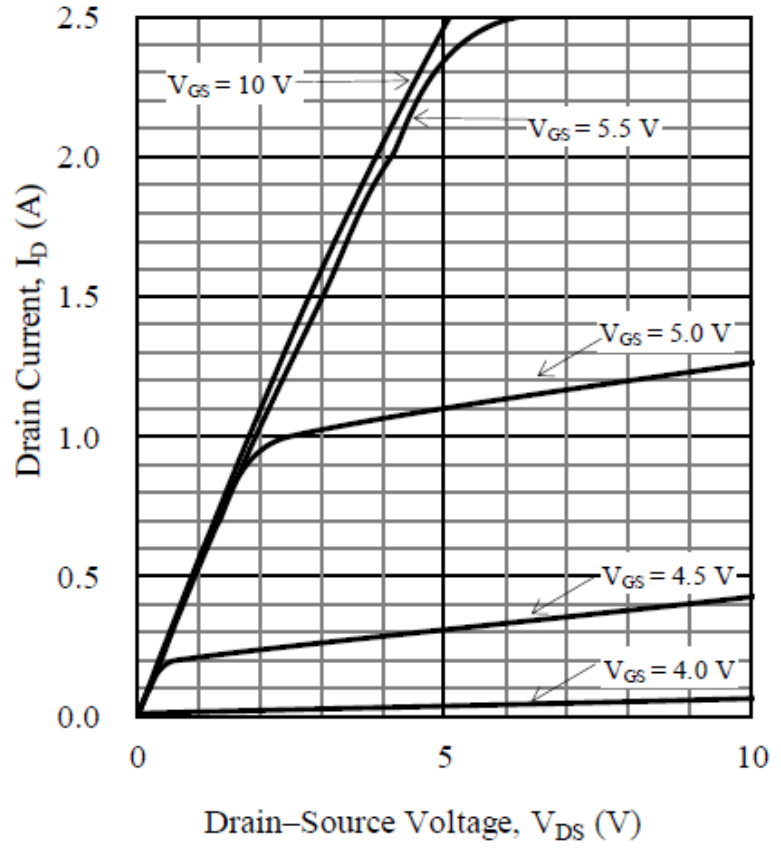


Figure 2. Typical Characteristics: I_D vs. V_{DS} ($T_J = 25^\circ C$)

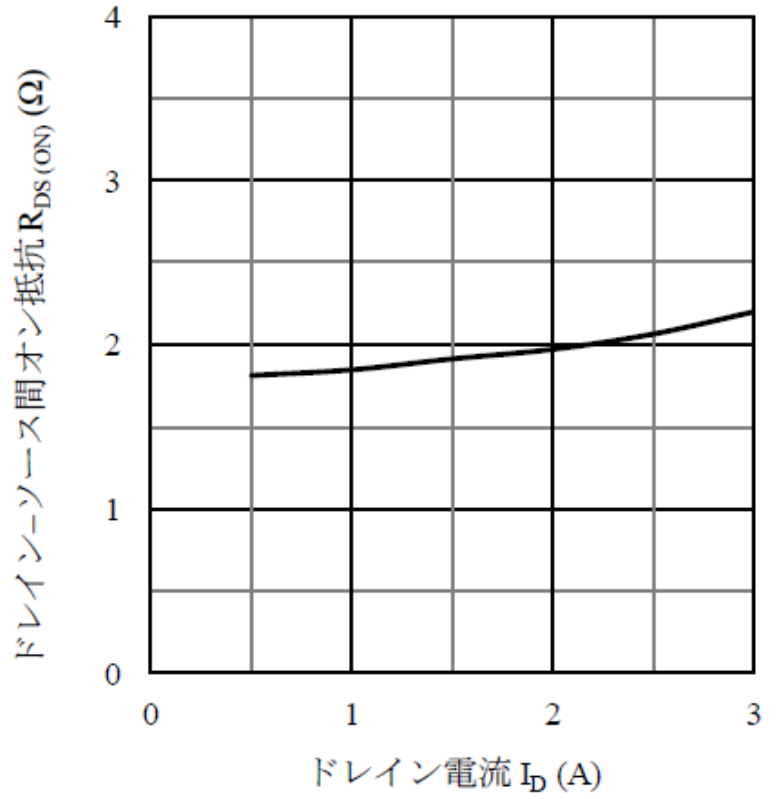


Figure 3. $R_{DS(ON)} - I_D$ 特性 ($V_{GS} = 10V$, $T_J = 25^\circ C$)

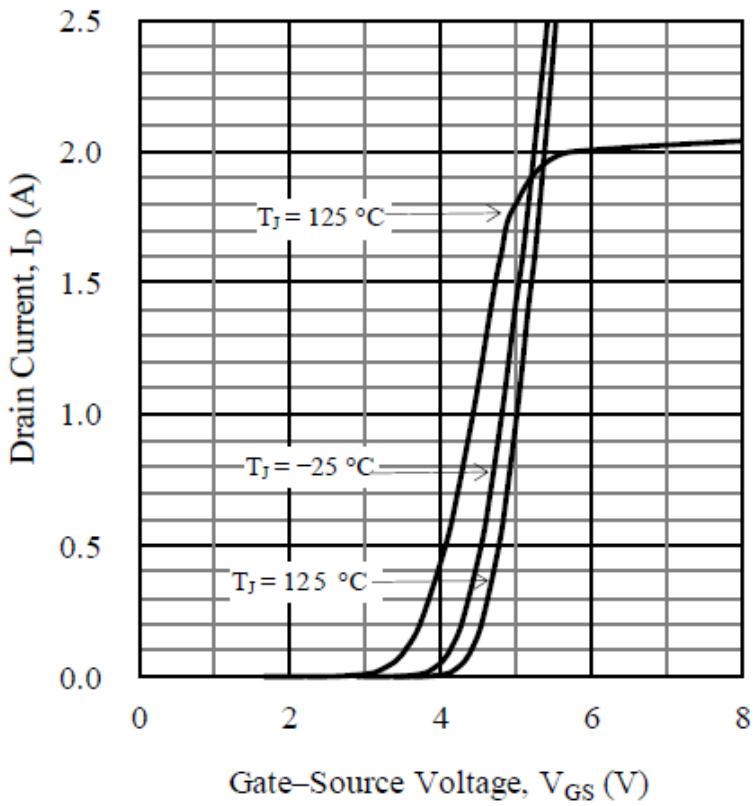


Figure 4. Typical Characteristics:
 I_D vs. V_{GS} ($V_{DS} = 10$ V)

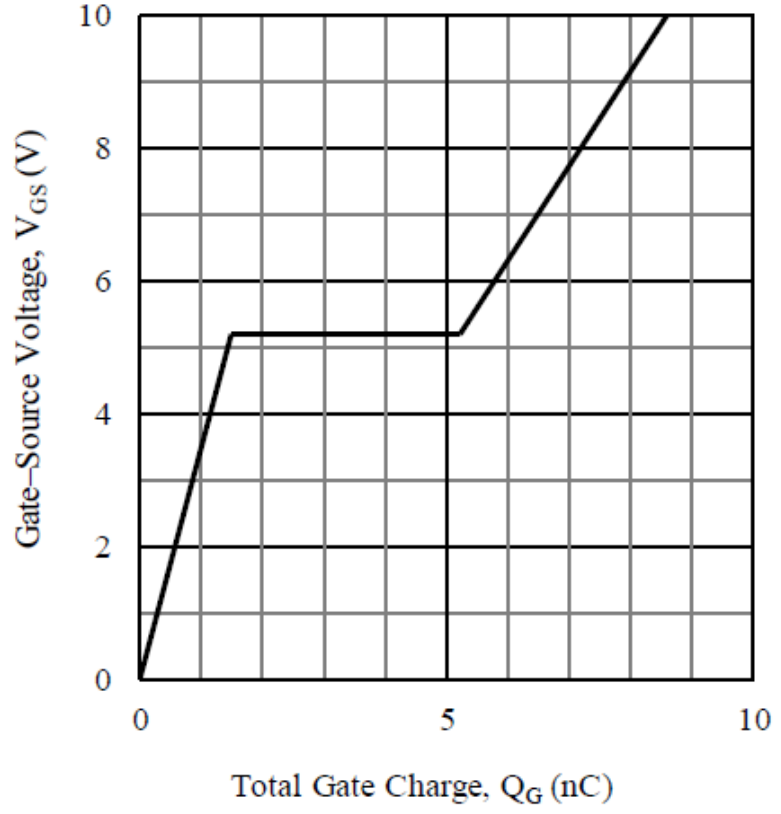


Figure 5. Typical Characteristics:
 V_{GS} vs. Q_G ($I_D = 1.5$ A, $V_{DD} = 10$ V)

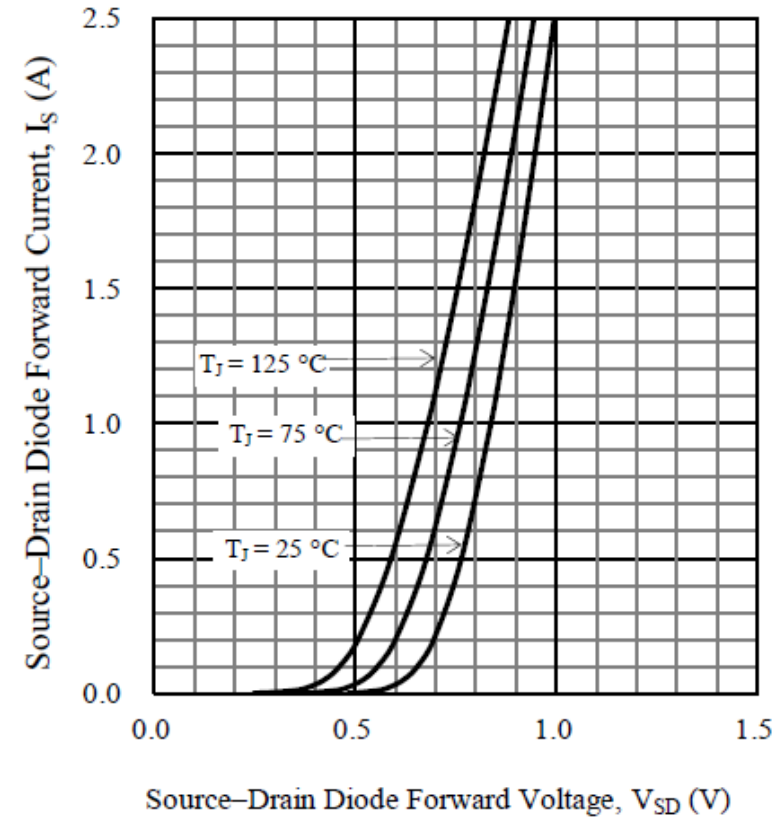
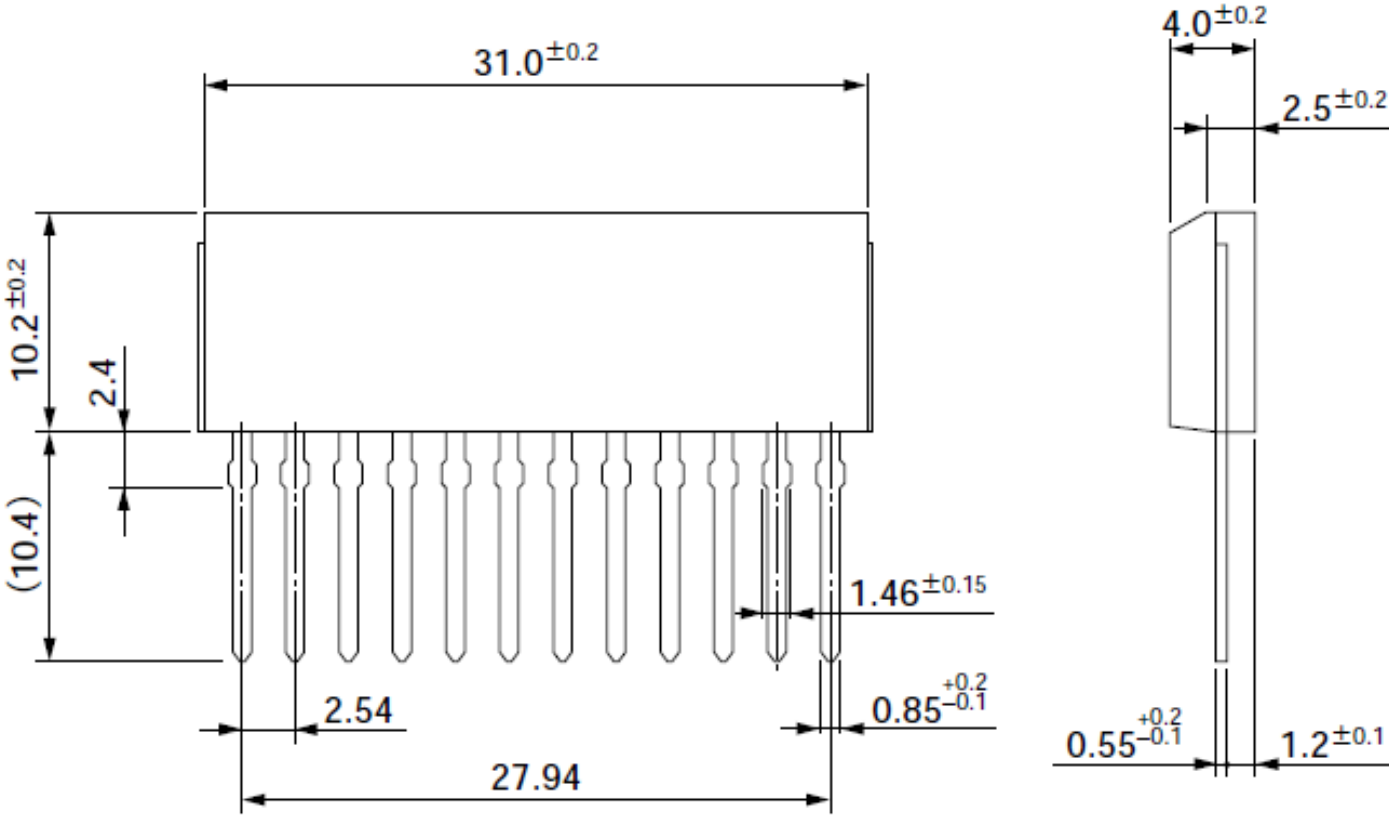


Figure 6. Typical Characteristics:
 I_S vs. V_{SD} ($V_{GS} = 0$ V)

SIP12 Package

- PCB Mounting Area: 31 mm × 4 mm (typ.)
- Height: 12.6 mm (typ.)



Unit: mm

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