



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

CPH3455 — N-Channel Silicon MOSFET General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS(on)} = 80\text{m}\Omega$ (typ.)
- 4V drive
- Halogen free compliance

Specifications

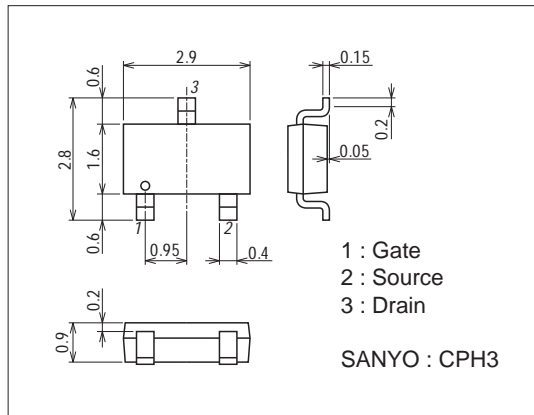
Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------------|-----------|--|-------------|------------------|
| Drain-to-Source Voltage | V_{DSS} | | 35 | V |
| Gate-to-Source Voltage | V_{GSS} | | ± 20 | V |
| Drain Current (DC) | I_D | | 3 | A |
| Drain Current (Pulse) | I_{DP} | $PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$ | 12 | A |
| Allowable Power Dissipation | P_D | When mounted on ceramic substrate ($900\text{mm}^2 \times 0.8\text{mm}$) | 1 | W |
| Channel Temperature | T_{ch} | | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | | -55 to +150 | $^\circ\text{C}$ |

Package Dimensions

unit : mm (typ)

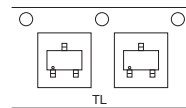
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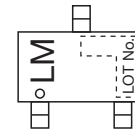
Product & Package Information

- Package : CPH3
- JEITA, JEDEC : SC-59, TO-236, SOT-23
- Minimum Packing Quantity : 3,000 pcs./reel

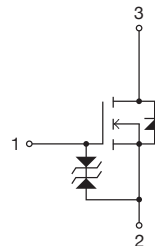
Packing Type: TL



Marking



Electrical Connection

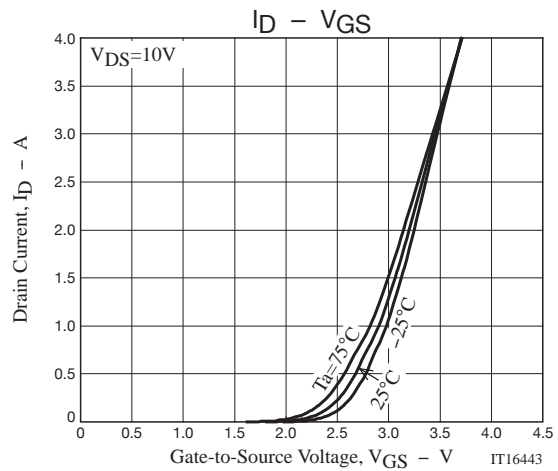
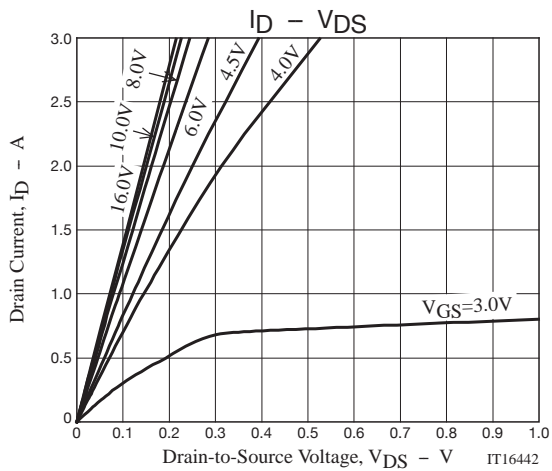
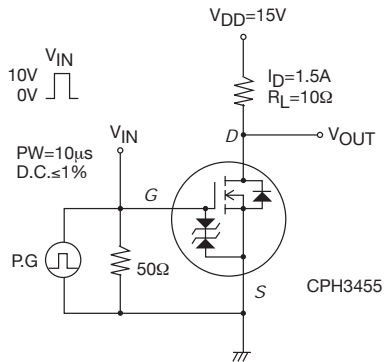


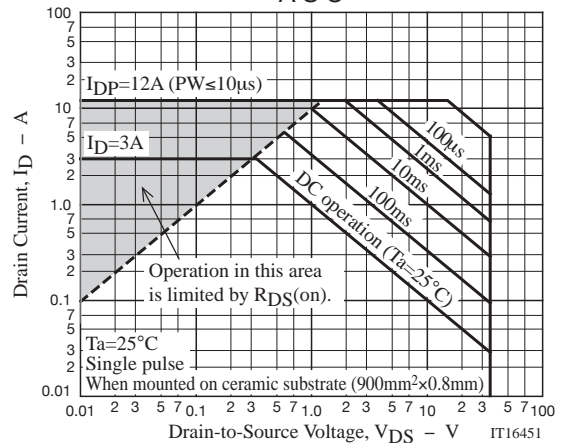
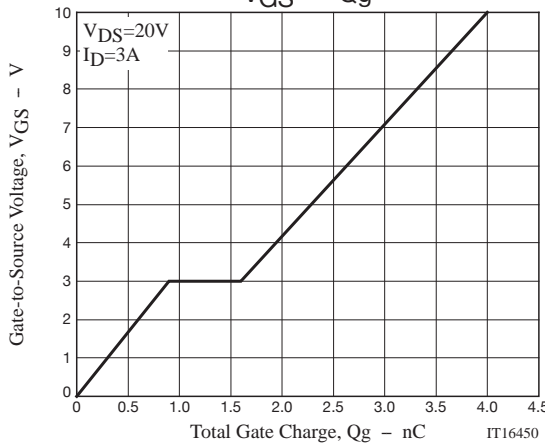
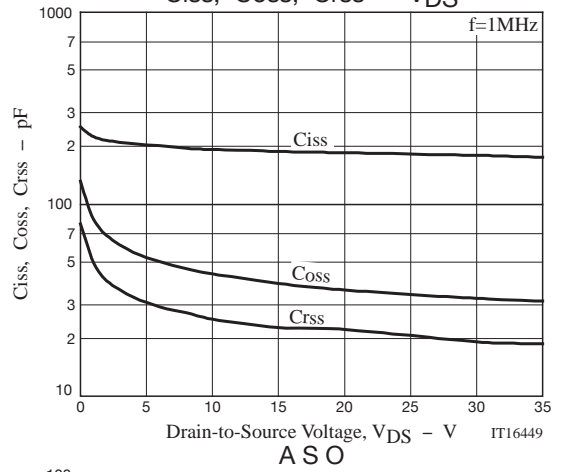
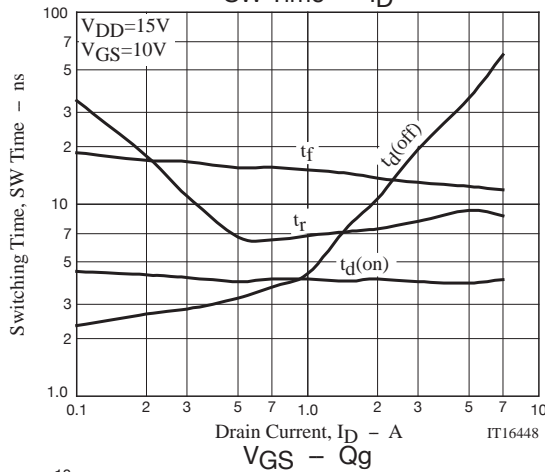
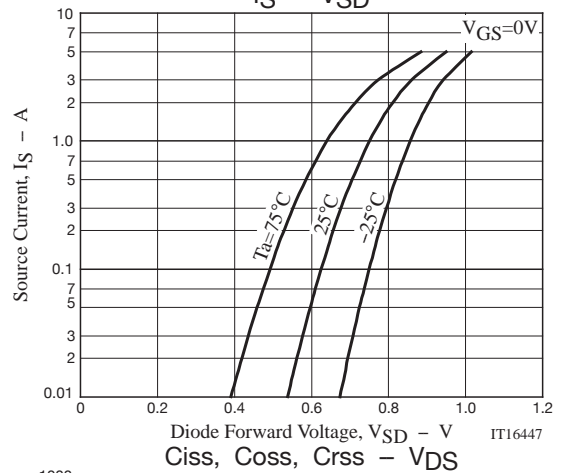
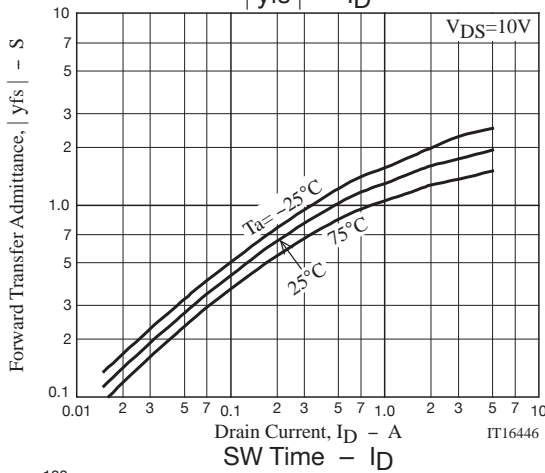
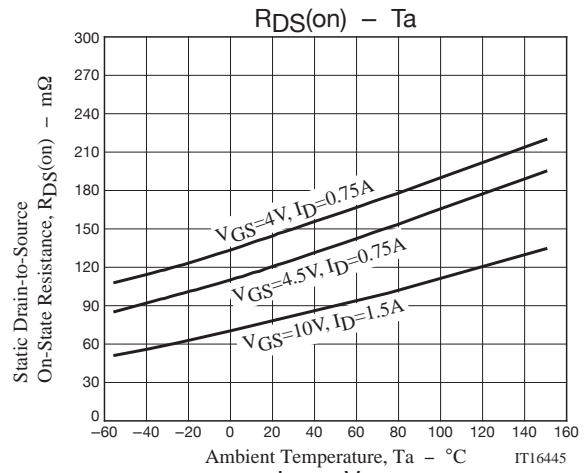
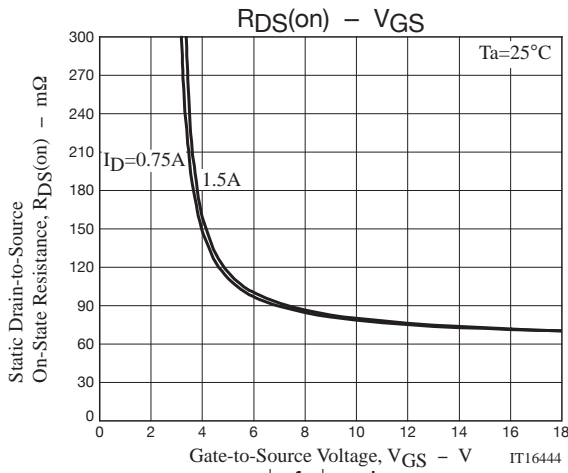
CPH3455

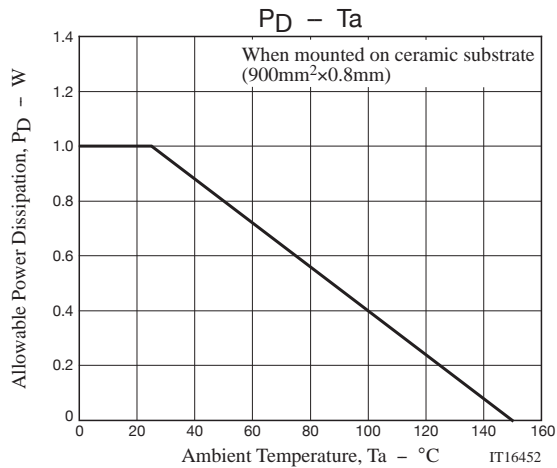
Electrical Characteristics at $T_a=25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|---------------|---|---------|------|----------|------------------|
| | | | min | typ | max | |
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D=1\text{mA}, V_{GS}=0\text{V}$ | 35 | | | V |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{DS}=35\text{V}, V_{GS}=0\text{V}$ | | | 1 | μA |
| Gate-to-Source Leakage Current | I_{GSS} | $V_{GS}=\pm 16\text{V}, V_{DS}=0\text{V}$ | | | ± 10 | μA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS}=10\text{V}, I_D=1\text{mA}$ | 1.2 | | 2.6 | V |
| Forward Transfer Admittance | $ y_{fs} $ | $V_{DS}=10\text{V}, I_D=1.5\text{A}$ | | 1.7 | | S |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)1}$ | $I_D=1.5\text{A}, V_{GS}=10\text{V}$ | | 80 | 104 | $\text{m}\Omega$ |
| | $R_{DS(on)2}$ | $I_D=0.75\text{A}, V_{GS}=4.5\text{V}$ | | 123 | 173 | $\text{m}\Omega$ |
| | $R_{DS(on)3}$ | $I_D=0.75\text{A}, V_{GS}=4\text{V}$ | | 148 | 208 | $\text{m}\Omega$ |
| Input Capacitance | C_{iss} | $V_{DS}=20\text{V}, f=1\text{MHz}$ | | 186 | | pF |
| Output Capacitance | C_{oss} | $V_{DS}=20\text{V}, f=1\text{MHz}$ | | 36 | | pF |
| Reverse Transfer Capacitance | C_{rss} | $V_{DS}=20\text{V}, f=1\text{MHz}$ | | 22 | | pF |
| Turn-ON Delay Time | $t_d(on)$ | See specified Test Circuit. | | 4.2 | | ns |
| Rise Time | t_r | See specified Test Circuit. | | 4.7 | | ns |
| Turn-OFF Delay Time | $t_d(off)$ | See specified Test Circuit. | | 15 | | ns |
| Fall Time | t_f | See specified Test Circuit. | | 5.7 | | ns |
| Total Gate Charge | Q_g | $V_{DS}=20\text{V}, V_{GS}=10\text{V}, I_D=3\text{A}$ | | 4 | | nC |
| Gate-to-Source Charge | Q_{gs} | $V_{DS}=20\text{V}, V_{GS}=10\text{V}, I_D=3\text{A}$ | | 0.9 | | nC |
| Gate-to-Drain "Miller" Charge | Q_{gd} | $V_{DS}=20\text{V}, V_{GS}=10\text{V}, I_D=3\text{A}$ | | 0.7 | | nC |
| Diode Forward Voltage | V_{SD} | $I_S=3\text{A}, V_{GS}=0\text{V}$ | | 0.86 | 1.2 | V |

Switching Time Test Circuit







Note on usage : Since the CPH3455 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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