

Product Summary

| $V_{(BR)DSS}$ | $R_{DS(on)TYP}$ | I_D |
|---------------|-----------------|-------|
| 30V | 18mΩ@10V | 7A |
| | 25mΩ@4.5V | |

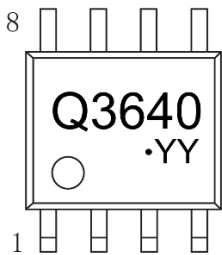
Feature

- TrenchFET Power MOSFET
- Excellent $R_{DS(on)}$
- Low Gate Charge

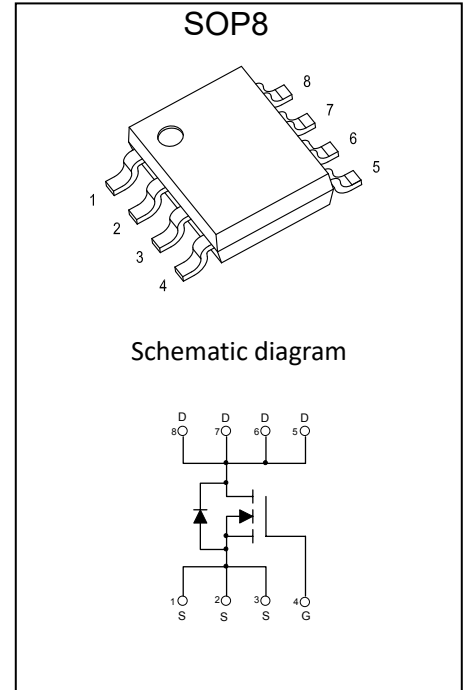
Application

- Load Switch for Portable Devices
- Battery Switch

MARKING:



Q3640 = Device code
YY = Date Code



ABSOLUTE MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|-----------------|-----------|----------------------|
| Drain-Source Voltage | V_{DS} | 30 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Continuous Drain Current | I_D | 7 | A |
| Pulsed Drain Current | I_{DM} | 28 | A |
| Power Dissipation | P_D | 3.1 | W |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 40 | $^{\circ}\text{C/W}$ |
| Junction Temperature | T_J | 150 | $^{\circ}\text{C}$ |
| Storage Temperature | T_{STG} | -55~ +150 | $^{\circ}\text{C}$ |

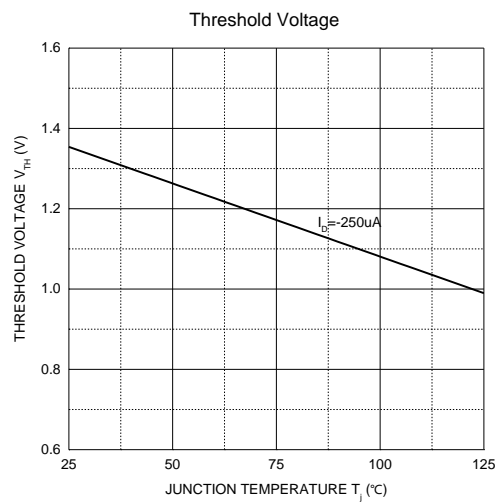
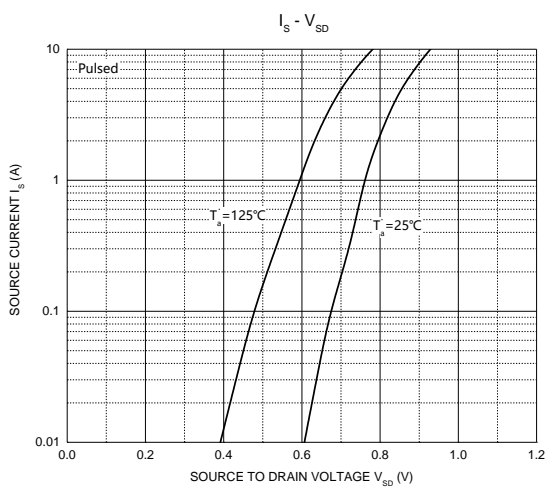
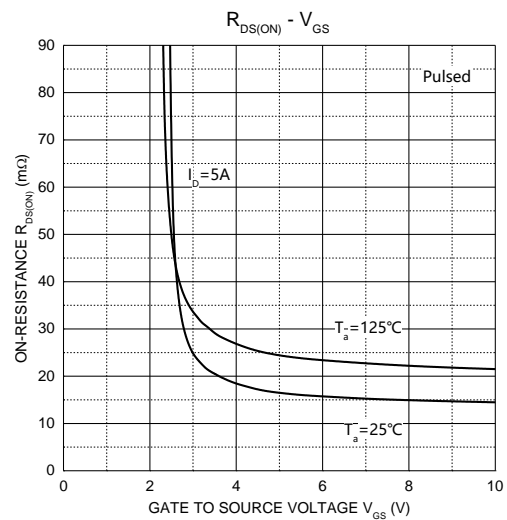
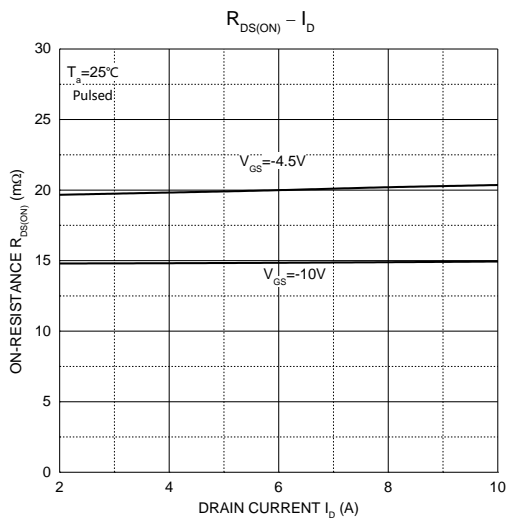
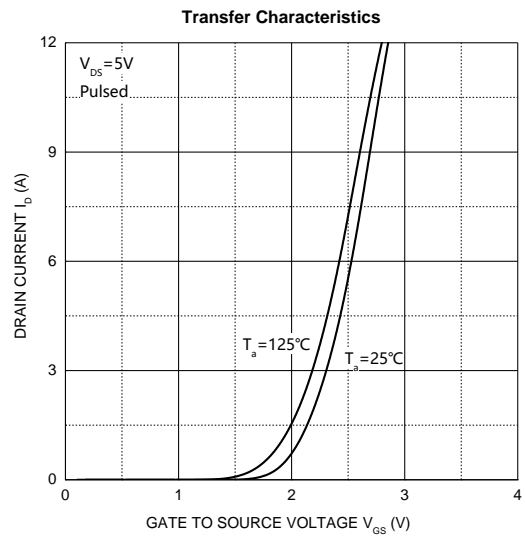
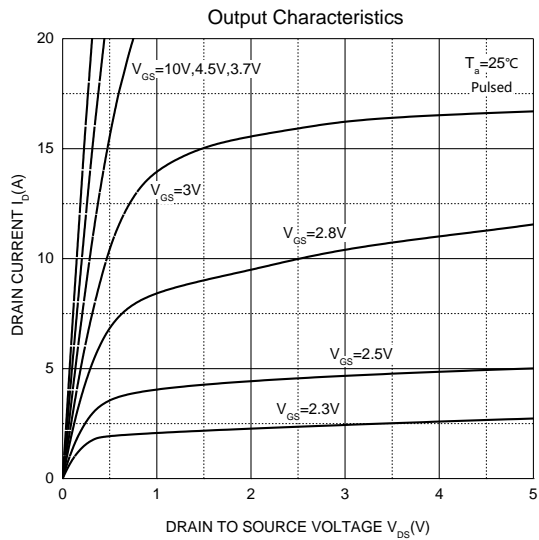
MOSFET ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise noted)

| Parameter | Symbol | Test Condition | Min | Type | Max | Unit |
|---|----------------------|--|-----|------|------|------|
| Static Characteristics | | | | | | |
| Drain-source breakdown voltage | V _{(BR)DSS} | V _{GS} = 0V, I _D = 250μA | 30 | | | V |
| Zero gate voltage drain current | I _{DSS} | V _{DS} = 30V, V _{GS} = 0V | | | 1 | μA |
| Gate-body leakage current | I _{GSS} | V _{GS} = ±20V, V _{DS} = 0V | | | ±0.1 | μA |
| On characteristics⁽¹⁾ | | | | | | |
| Gate threshold voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D = 250μA | 1 | 1.4 | 2.5 | V |
| Drain-source on-resistance | R _{DS(on)} | V _{GS} = 10V, I _D = 8A | | 18 | 24 | mΩ |
| | | V _{GS} = 4.5V, I _D = 4A | | 25 | 35 | |
| Dynamic characteristics⁽²⁾ | | | | | | |
| Input capacitance | C _{iSS} | V _{DS} = 15V, V _{GS} = 0V, f = 1MHz | | 980 | | pF |
| Output capacitance | C _{oSS} | | | 100 | | |
| Reverse transfer capacitance | C _{rSS} | | | 85 | | |
| Switching characteristics⁽²⁾ | | | | | | |
| Total gate charge | Q _g | V _{DS} = 15V, V _{GS} = 10V, I _D = 8A | | 25 | | nC |
| Gate-source charge | Q _{gs} | | | 7 | | |
| Gate-drain charge | Q _{gd} | | | 9 | | |
| Turn-on delay time | t _{d(on)} | V _{DD} = 15V, I _D = 8A, R _G = 3.0Ω V _{GS} = 10V | | 14 | | ns |
| Turn-on rise time | t _r | | | 20 | | |
| Turn-off delay time | t _{d(off)} | | | 35 | | |
| Turn-off fall time | t _f | | | 13 | | |
| Drain-Source Diode Characteristics | | | | | | |
| Drain-source diode forward voltage ⁽¹⁾ | V _{SD} | V _{GS} = 0V, I _S = 8A | | | 1.2 | V |
| Continuous drain-source diode forward current | I _S | | | | 8 | A |
| Pulsed drain-source diode forward current | I _{SM} | | | | 24 | |

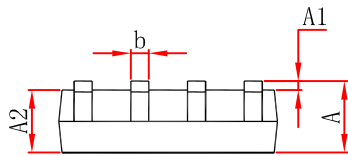
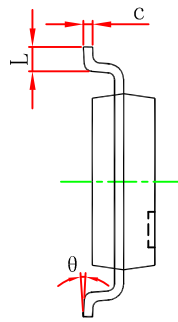
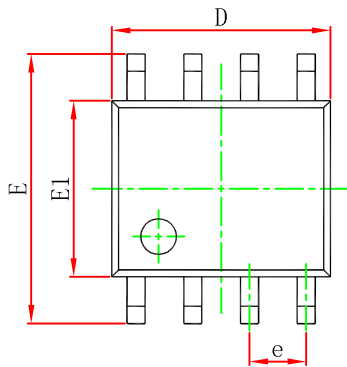
Notes:

1. Pulse test; pulse width ≤ 300μs, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.

Typical Electrical and Thermal Characteristics



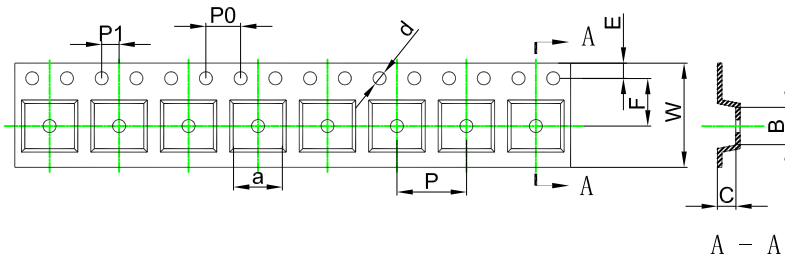
SOP8 Package Information



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 1.350 | 1.750 | 0.053 | 0.069 |
| A1 | 0.100 | 0.250 | 0.004 | 0.010 |
| A2 | 1.350 | 1.550 | 0.053 | 0.061 |
| b | 0.330 | 0.510 | 0.013 | 0.020 |
| c | 0.170 | 0.250 | 0.007 | 0.010 |
| D | 4.800 | 5.000 | 0.189 | 0.197 |
| e | 1.270 (BSC) | | 0.050 (BSC) | |
| E | 5.800 | 6.200 | 0.228 | 0.244 |
| E1 | 3.800 | 4.000 | 0.150 | 0.157 |
| L | 0.400 | 1.270 | 0.016 | 0.050 |
| θ | 0° | 8° | 0° | 8° |

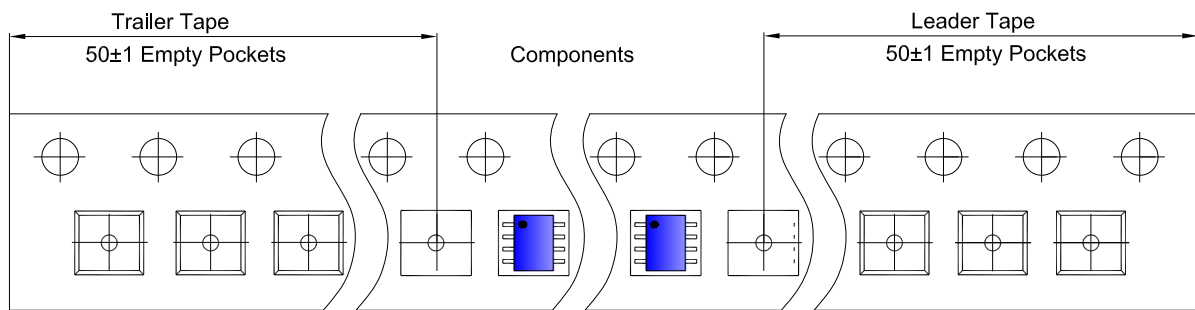
SOP8 Tape and Reel

SOP8 Embossed Carrier Tape

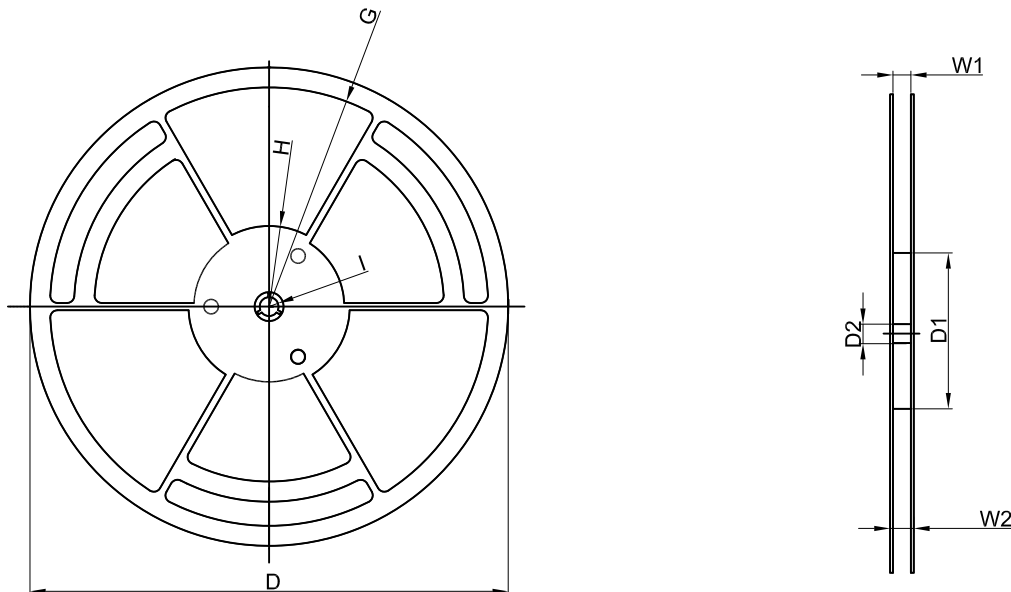


| Dimensions are in millimeter | | | | | | | | | | |
|------------------------------|------|------|------|-------|------|------|------|------|------|-------|
| Pkg type | a | B | C | d | E | F | P0 | P | P1 | W |
| SOP8 | 6.40 | 5.40 | 2.10 | Ø1.50 | 1.75 | 5.50 | 4.00 | 8.00 | 2.00 | 12.00 |

SOP8 Tape Leader and Trailer



SOP8 Reel



| Dimensions are in millimeter | | | | | | | | |
|------------------------------|---------|--------|-------|---------|--------|-------|-------|-------|
| Reel Option | D | D1 | D2 | G | H | I | W1 | W2 |
| 13" Dia | Ø330.00 | 100.00 | 13.00 | R151.00 | R56.00 | R6.50 | 12.40 | 17.60 |

| REEL | Reel Size | Box | Box Size(mm) | Carton | Carton Size(mm) | G.W.(kg) |
|-----------|-----------|-----------|--------------|------------|-----------------|----------|
| 4,000 pcs | 13 inch | 8,000 pcs | 360×360×65 | 64,000 pcs | 565×380×390 | |