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Team Nexperia


# PMDT290UCE

## 20 / 20 V, 800 / 550 mA N/P-channel Trench MOSFET

Rev. 1 — 6 October 2011 Product data sheet

## 1. Product profile

### 1.1 General description

Complementary N/P-channel enhancement mode Field-Effect Transistor (FET) in an ultra small and flat lead SOT666 Surface-Mounted Device (SMD) plastic package using Trench MOSFET technology.

### 1.2 Features and benefits

- Very fast switching
- Trench MOSFET technology
- ESD protection up to 2 kV
- AEC-Q101 qualified

### 1.3 Applications

- Relay driver
- High-speed line driver
- Low-side loadswitch
- Switching circuits

### 1.4 Quick reference data

**Table 1. Quick reference data**

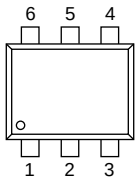
| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| **TR1 (N-channel), Static characteristics** | | | | | | | |
| $R_{DSon}$ | drain-source on-state resistance | $V_{GS}$ = 4.5 V; $I_D$ = 500 mA; $T_j$ = 25 °C | | - | 290 | 380 | mΩ |
| **TR2 (P-channel), Static characteristics** | | | | | | | |
| $R_{DSon}$ | drain-source on-state resistance | $V_{GS}$ = -4.5 V; $I_D$ = -400 mA; $T_j$ = 25 °C | | - | 0.67 | 0.85 | Ω |
| **TR1 (N-channel)** | | | | | | | |
| $V_{DS}$ | drain-source voltage | $T_j$ = 25 °C | | - | - | 20 | V |
| $V_{GS}$ | gate-source voltage | | | -8 | - | 8 | V |
| $I_D$ | drain current | $V_{GS}$ = 4.5 V; $T_{amb}$ = 25 °C | [1] | - | - | 800 | mA |
| **TR2 (P-channel)** | | | | | | | |
| $V_{DS}$ | drain-source voltage | $T_j$ = 25 °C | | - | - | -20 | V |
| $V_{GS}$ | gate-source voltage | | | -8 | - | 8 | V |
| $I_D$ | drain current | $V_{GS}$ = -4.5 V; $T_{amb}$ = 25 °C | [1] | - | - | -550 | mA |

[1] Device mounted on an FR4 PCB, single-sided copper, tin-plated and mounting pad for drain 1 $cm^2$.

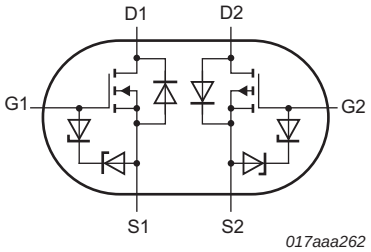
## 2. Pinning information

**Table 2. Pinning information**

| Pin | Symbol | Description | Simplified outline | Graphic symbol |
|---|---|---|---|---|
| 1 | S1 | source TR1 | | |
| 2 | G1 | gate TR1 | | |
| 3 | D2 | drain TR2 | | |
| 4 | S2 | source TR2 | | |
| 5 | G2 | gate TR2 | | |
| 6 | D1 | drain TR1 | | |




SOT666




## 3. Ordering information

**Table 3. Ordering information**

| Type number | Package | | |
|---|---|---|---|
| | Name | Description | Version |
| PMDT290UCE | - | plastic surface-mounted package; 6 leads | SOT666 |

## 4. Marking

**Table 4. Marking codes**

| Type number | Marking code |
|---|---|
| PMDT290UCE | AF |

## 5. Limiting values

**Table 5. Limiting values**

*In accordance with the Absolute Maximum Rating System (IEC 60134).*

| Symbol | Parameter | Conditions | | Min | Max | Unit |
|---|---|---|---|---|---|---|
| **TR1 (N-channel)** | | | | | | |
| $V_{DS}$ | drain-source voltage | $T_j$ = 25 °C | | - | 20 | V |
| $V_{GS}$ | gate-source voltage | | | -8 | 8 | V |
| $I_D$ | drain current | $V_{GS}$ = 4.5 V; $T_{amb}$ = 25 °C | [1] | - | 800 | mA |
| | | $V_{GS}$ = 4.5 V; $T_{amb}$ = 100 °C | [1] | - | 500 | mA |
| $I_{DM}$ | peak drain current | $T_{amb}$ = 25 °C; single pulse; $t_p \leq 10$ µs | | - | 3.2 | A |
| $P_{tot}$ | total power dissipation | $T_{amb}$ = 25 °C | [2] | - | 330 | mW |
| | | | [1] | - | 390 | mW |
| | | $T_{sp}$ = 25 °C | | - | 1090 | mW |
| **TR1 (N-channel), Source-drain diode** | | | | | | |
| $I_S$ | source current | $T_{amb}$ = 25 °C | [1] | - | 370 | mA |
| **TR1 N-channel), ESD maximum rating** | | | | | | |
| $V_{ESD}$ | electrostatic discharge voltage | HBM | [3] | - | 2000 | V |

**Table 5. Limiting values** *...continued*

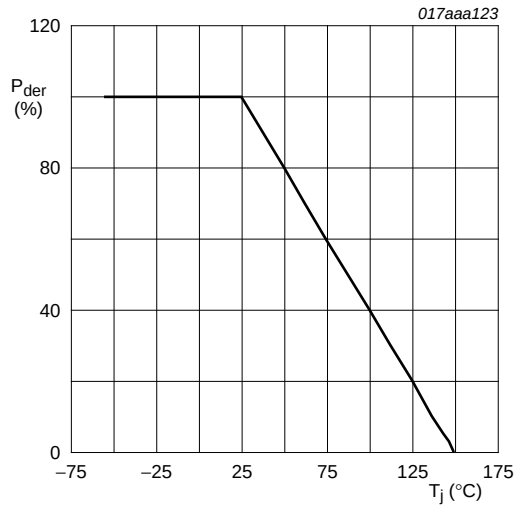
*In accordance with the Absolute Maximum Rating System (IEC 60134).*

| Symbol | Parameter | Conditions | | Min | Max | Unit |
|---|---|---|---|---|---|---|
| **TR2 (P-channel)** | | | | | | |
| $V_{DS}$ | drain-source voltage | $T_j$ = 25 °C | | - | -20 | V |
| $V_{GS}$ | gate-source voltage | | | -8 | 8 | V |
| $I_D$ | drain current | $V_{GS}$ = -4.5 V; $T_{amb}$ = 25 °C | [1] | - | -550 | mA |
| | | $V_{GS}$ = -4.5 V; $T_{amb}$ = 100 °C | [1] | - | -350 | mA |
| $I_{DM}$ | peak drain current | $T_{amb}$ = 25 °C; single pulse; $t_p \leq 10$ µs | | - | -2.2 | A |
| $P_{tot}$ | total power dissipation | $T_{amb}$ = 25 °C | [2] | - | 330 | mW |
| | | | [1] | - | 390 | mW |
| | | $T_{sp}$ = 25 °C | | - | 1090 | mW |
| **TR2 (P-channel), Source-drain diode** | | | | | | |
| $I_S$ | source current | $T_{amb}$ = 25 °C | [1] | - | -370 | mA |
| **TR2 (P-channel), ESD maximum rating** | | | | | | |
| $V_{ESD}$ | electrostatic discharge voltage | HBM | [3] | - | 2000 | V |
| **Per device** | | | | | | |
| $P_{tot}$ | total power dissipation | $T_{amb}$ = 25 °C | [2] | - | 500 | mW |
| $T_j$ | junction temperature | | | -55 | 150 | °C |
| $T_{amb}$ | ambient temperature | | | -55 | 150 | °C |
| $T_{stg}$ | storage temperature | | | -65 | 150 | °C |

[1] Device mounted on an FR4 PCB, single-sided copper, tin-plated and mounting pad for drain 1 $cm^2$.

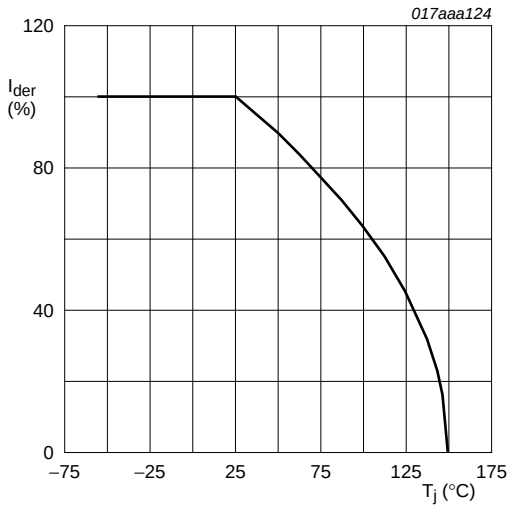
[2] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper; tin-plated and standard footprint.

[3] Measured between all pins.



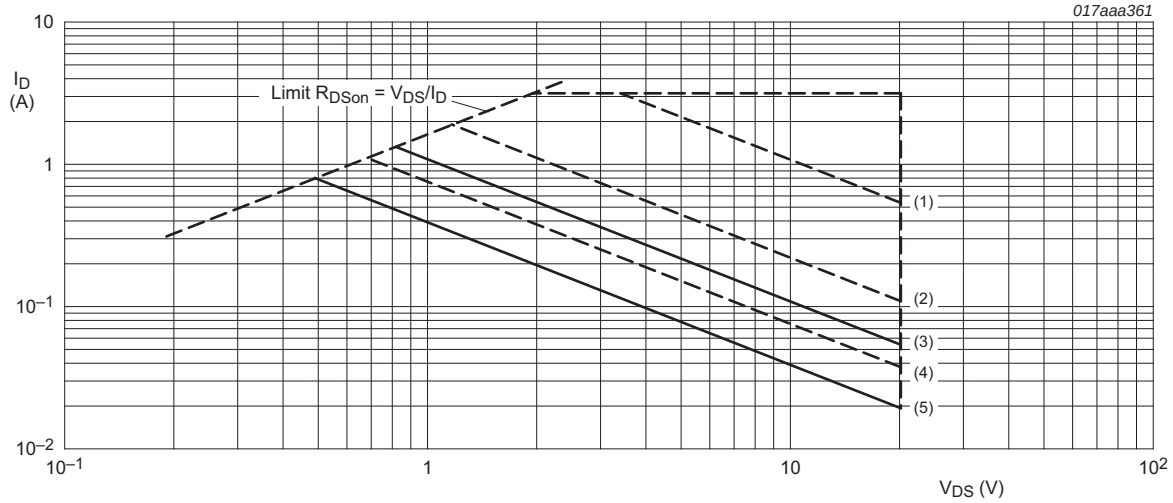

$$P_{der} = \frac{P_{tot}}{P_{tot(25°C)}} \times 100\ \%$$

**Fig 1. Normalized total power dissipation as a function of junction temperature**




$$I_{der} = \frac{I_D}{I_{D(25°C)}} \times 100\ \%$$

**Fig 2. Normalized continuous drain current as a function of junction temperature**




$I_{DM}$ = single pulse

(1) $t_p$ = 1 ms

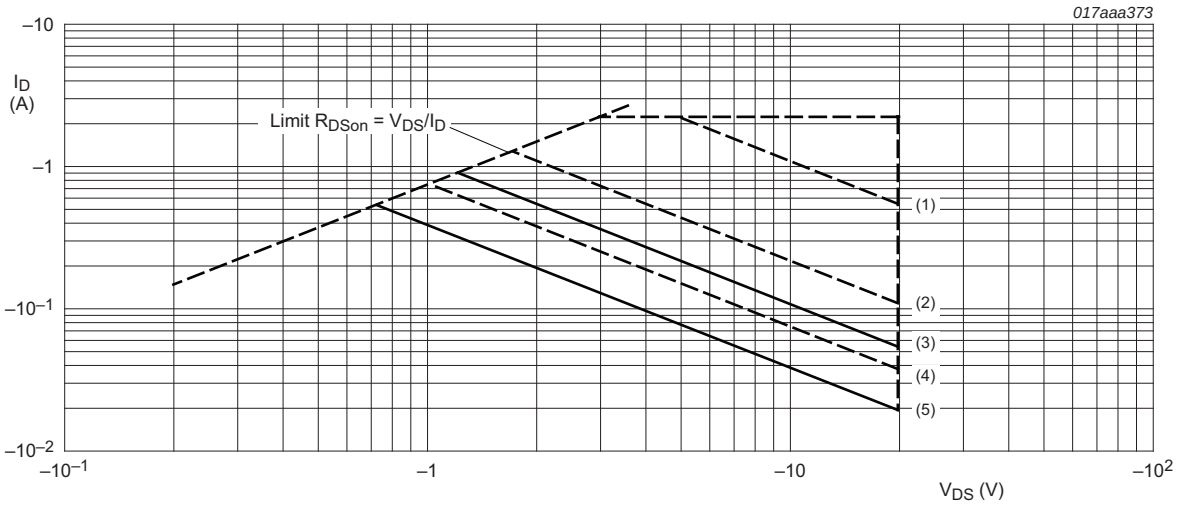
(2) $t_p$ = 10 ms

(3) DC; $T_{sp}$ = 25 °C

(4) $t_p$ = 100 ms

(5) DC; $T_{amb}$ = 25 °C; drain mounting pad 1 $cm^2$

**Fig 3. Safe operating area TR1 (N-channel); junction to ambient; continuous and peak drain currents as a function of drain-source voltage**




$I_{DM}$ = single pulse

(1) $t_p$ = 1 ms

(2) $t_p$ = 10 ms

(3) DC; $T_{sp}$ = 25 °C

(4) $t_p$ = 100 ms

(5) DC; $T_{amb}$ = 25 °C; drain mounting pad 1 $cm^2$

**Fig 4. Safe operating area TR2 (P-channel); junction to ambient; continuous and peak drain currents as a function of drain-source voltage**

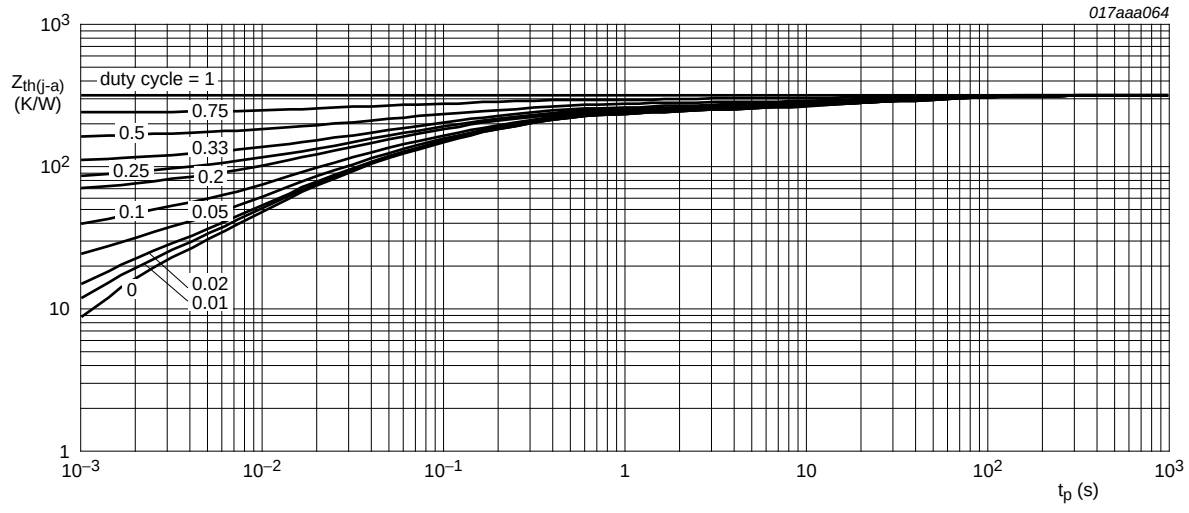
# 6. Thermal characteristics

**Table 6. Thermal characteristics**

| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| **TR1 (N-channel)** | | | | | | | |
| $R_{th(j-a)}$ | thermal resistance from junction to ambient | in free air | [1] | - | 330 | 380 | K/W |
| | | | [2] | - | 280 | 320 | K/W |
| $R_{th(j-sp)}$ | thermal resistance from junction to solder point | | | - | - | 115 | K/W |
| **TR2 (P-channel)** | | | | | | | |
| $R_{th(j-a)}$ | thermal resistance from junction to ambient | in free air | [1] | - | 330 | 380 | K/W |
| | | | [2] | - | 280 | 320 | K/W |
| $R_{th(j-sp)}$ | thermal resistance from junction to solder point | | | - | - | 115 | K/W |
| **Per device** | | | | | | | |
| $R_{th(j-a)}$ | thermal resistance from junction to ambient | in free air | [1] | - | - | 250 | K/W |

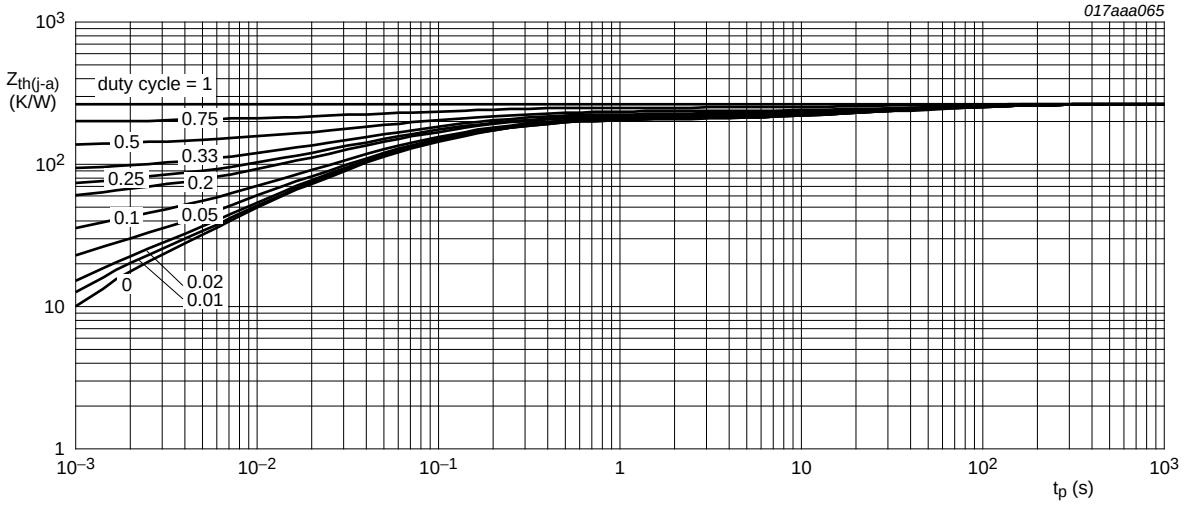
[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper; tin-plated and standard footprint.

[2] Device mounted on an FR4 PCB, single-sided copper, tin-plated and mounting pad for drain 1 $cm^2$.



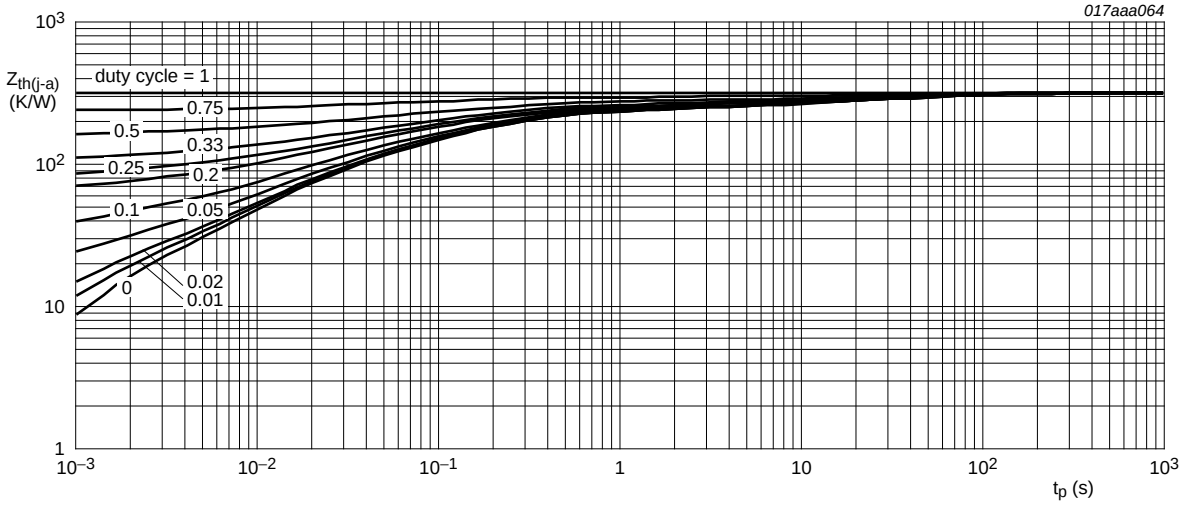

FR4 PCB, standard footprint

**Fig 5. TR1: Transient thermal impedance from junction to ambient as a function of pulse duration; typical values**



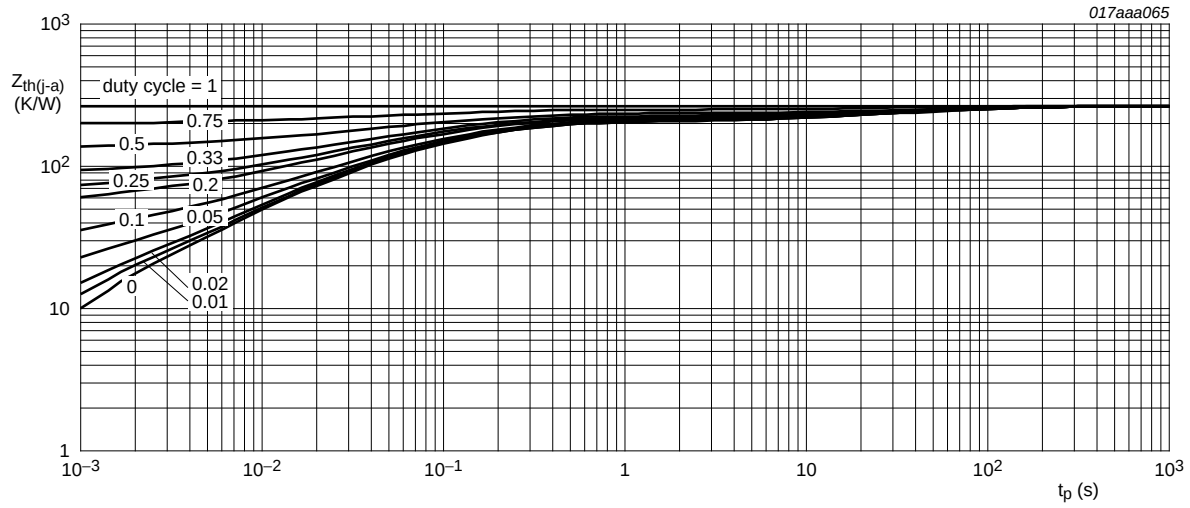

FR4 PCB, mounting pad for drain 1 $cm^2$

**Fig 6. TR1: Transient thermal impedance from junction to ambient as a function of pulse duration; typical values**




FR4 PCB, standard footprint

**Fig 7. TR2: Transient thermal impedance from junction to ambient as a function of pulse duration; typical values**




FR4 PCB, mounting pad for drain 1 $cm^2$

**Fig 8. TR2: Transient thermal impedance from junction to ambient as a function of pulse duration; typical values**

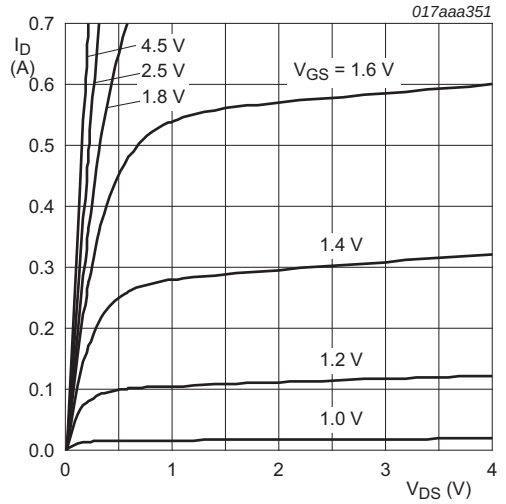
# 7. Characteristics

**Table 7. Characteristics**

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **TR1 (N-channel), Static characteristics** | | | | | | |
| $V_{(BR)DSS}$ | drain-source breakdown voltage | $I_D$ = 250 µA; $V_{GS}$ = 0 V; $T_j$ = 25 °C | 20 | - | - | V |
| $V_{GSth}$ | gate-source threshold voltage | $I_D$ = 250 µA; $V_{DS}$ = $V_{GS}$; $T_j$ = 25 °C | 0.5 | 0.75 | 0.95 | V |
| $I_{DSS}$ | drain leakage current | $V_{DS}$ = 20 V; $V_{GS}$ = 0 V; $T_j$ = 25 °C | - | - | 1 | µA |
| | | $V_{DS}$ = 20 V; $V_{GS}$ = 0 V; $T_j$ = 150 °C | - | - | 10 | µA |
| $I_{GSS}$ | gate leakage current | $V_{GS}$ = 8 V; $V_{DS}$ = 0 V; $T_j$ = 25 °C | - | - | 2 | µA |
| | | $V_{GS}$ = -8 V; $V_{DS}$ = 0 V; $T_j$ = 25 °C | - | - | 2 | µA |
| | | $V_{GS}$ = 4.5 V; $V_{DS}$ = 0 V; $T_j$ = 25 °C | - | - | 500 | nA |
| | | $V_{GS}$ = -4.5 V; $V_{DS}$ = 0 V; $T_j$ = 25 °C | - | - | 500 | nA |
| $R_{DSon}$ | drain-source on-state resistance | $V_{GS}$ = 4.5 V; $I_D$ = 500 mA; $T_j$ = 25 °C | - | 290 | 380 | mΩ |
| | | $V_{GS}$ = 4.5 V; $I_D$ = 500 mA; $T_j$ = 150 °C | - | 460 | 610 | mΩ |
| | | $V_{GS}$ = 2.5 V; $I_D$ = 200 mA; $T_j$ = 25 °C | - | 420 | 620 | mΩ |
| | | $V_{GS}$ = 1.8 V; $I_D$ = 10 mA; $T_j$ = 25 °C | - | 0.6 | 1.1 | Ω |
| $g_{fs}$ | transfer conductance | $V_{DS}$ = 10 V; $I_D$ = 200 mA; $T_j$ = 25 °C | - | 1.6 | - | S |
| **TR1 (N-channel), Dynamic characteristics** | | | | | | |
| $Q_{G(tot)}$ | total gate charge | $V_{DS}$ = 10 V; $I_D$ = 500 mA; $V_{GS}$ = 4.5 V; $T_j$ = 25 °C | - | 0.45 | 0.68 | nC |
| $Q_{GS}$ | gate-source charge | | - | 0.15 | - | nC |
| $Q_{GD}$ | gate-drain charge | | - | 0.15 | - | nC |

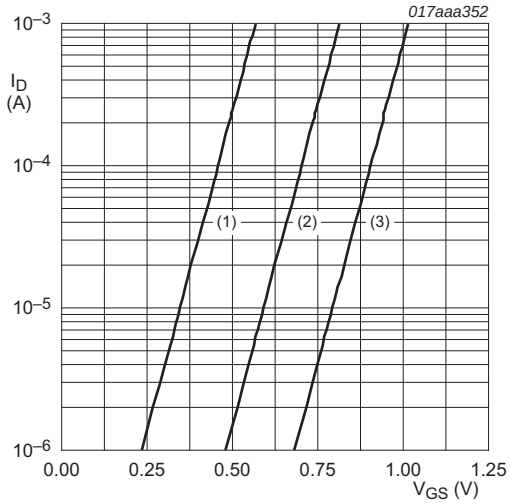
**Table 7. Characteristics** *...continued*

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| $C_{iss}$ | input capacitance | $V_{DS}$ = 10 V; f = 1 MHz; $V_{GS}$ = 0 V; $T_j$ = 25 °C | - | 55 | 83 | pF |
| $C_{oss}$ | output capacitance | | - | 15 | - | pF |
| $C_{rss}$ | reverse transfer capacitance | | - | 7 | - | pF |
| $t_{d(on)}$ | turn-on delay time | $V_{DS}$ = 10 V; $R_L$ = 250 Ω; $V_{GS}$ = 4.5 V; $R_{G(ext)}$ = 6 Ω; $T_j$ = 25 °C | - | 6 | 12 | ns |
| $t_r$ | rise time | | - | 4 | - | ns |
| $t_{d(off)}$ | turn-off delay time | | - | 86 | 172 | ns |
| $t_f$ | fall time | | - | 31 | - | ns |
| **TR1 (N-channel), Source-drain diode characteristics** | | | | | | |
| $V_{SD}$ | source-drain voltage | $I_S$ = 300 mA; $V_{GS}$ = 0 V; $T_j$ = 25 °C | 0.48 | 0.77 | 1.2 | V |
| **TR2 (P-channel), Static characteristics** | | | | | | |
| $V_{(BR)DSS}$ | drain-source breakdown voltage | $I_D$ = -250 µA; $V_{GS}$ = 0 V; $T_j$ = 25 °C | -20 | - | - | V |
| $V_{GSth}$ | gate-source threshold voltage | $I_D$ = -250 µA; $V_{DS}$ = $V_{GS}$; $T_j$ = 25 °C | -0.5 | -0.8 | -1.3 | V |
| $I_{DSS}$ | drain leakage current | $V_{DS}$ = -20 V; $V_{GS}$ = 0 V; $T_j$ = 25 °C | - | - | -1 | µA |
| | | $V_{DS}$ = -20 V; $V_{GS}$ = 0 V; $T_j$ = 150 °C | - | - | -10 | µA |
| $I_{GSS}$ | gate leakage current | $V_{GS}$ = 8 V; $V_{DS}$ = 0 V; $T_j$ = 25 °C | - | - | -2 | µA |
| | | $V_{GS}$ = -8 V; $V_{DS}$ = 0 V; $T_j$ = 25 °C | - | - | -2 | µA |
| | | $V_{GS}$ = 4.5 V; $V_{DS}$ = 0 V; $T_j$ = 25 °C | - | - | -0.5 | µA |
| | | $V_{GS}$ = -4.5 V; $V_{DS}$ = 0 V; $T_j$ = 25 °C | - | - | -0.5 | µA |
| $R_{DSon}$ | drain-source on-state resistance | $V_{GS}$ = -4.5 V; $I_D$ = -400 mA; $T_j$ = 25 °C | - | 0.67 | 0.85 | Ω |
| | | $V_{GS}$ = -4.5 V; $I_D$ = -400 mA; $T_j$ = 150 °C | - | 1.1 | 1.4 | Ω |
| | | $V_{GS}$ = -2.5 V; $I_D$ = -200 mA; $T_j$ = 25 °C | - | 1.2 | 1.5 | Ω |
| | | $V_{GS}$ = -1.8 V; $I_D$ = -10 mA; $T_j$ = 25 °C | - | 1.8 | 2.8 | Ω |
| $g_{fs}$ | transfer conductance | $V_{DS}$ = -10 V; $I_D$ = -200 mA; $T_j$ = 25 °C | - | 610 | - | mS |
| **TR2 (P-channel), Dynamic characteristics** | | | | | | |
| $Q_{G(tot)}$ | total gate charge | $V_{DS}$ = -10 V; $I_D$ = -400 mA; $V_{GS}$ = -4.5 V; $T_j$ = 25 °C | - | 0.76 | 1.14 | nC |
| $Q_{GS}$ | gate-source charge | | - | 0.28 | - | nC |
| $Q_{GD}$ | gate-drain charge | | - | 0.18 | - | nC |
| $C_{iss}$ | input capacitance | $V_{DS}$ = -10 V; f = 1 MHz; $V_{GS}$ = 0 V; $T_j$ = 25 °C | - | 58 | 87 | pF |
| $C_{oss}$ | output capacitance | | - | 21 | - | pF |
| $C_{rss}$ | reverse transfer capacitance | | - | 12 | - | pF |
| $t_{d(on)}$ | turn-on delay time | $V_{DS}$ = -10 V; $R_L$ = 250 Ω; $V_{GS}$ = -4.5 V; $R_{G(ext)}$ = 6 Ω; $T_j$ = 25 °C | - | 18 | 36 | ns |
| $t_r$ | rise time | | - | 30 | - | ns |
| $t_{d(off)}$ | turn-off delay time | | - | 80 | 160 | ns |
| $t_f$ | fall time | | - | 72 | - | ns |
| **TR2 (P-channel), Source-drain diode characteristics** | | | | | | |
| $V_{SD}$ | source-drain voltage | $I_S$ = -300 mA; $V_{GS}$ = 0 V; $T_j$ = 25 °C | -0.48 | -0.84 | -1.2 | V |




$T_j$ = 25 °C

**Fig 9. TR1; Output characteristics: drain current as a function of drain-source voltage; typical values**



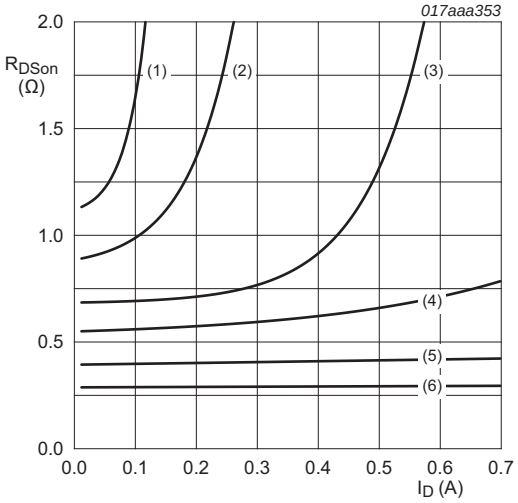

$T_j$ = 25 °C; $V_{DS}$ = 5 V

(1) minimum values

(2) typical values

(3) maximum values

**Fig 10. TR1; Sub-threshold drain current as a function of gate-source voltage**




$T_j$ = 25 °C

(1) $V_{GS}$ = 1.3 V

(2) $V_{GS}$ = 1.4 V

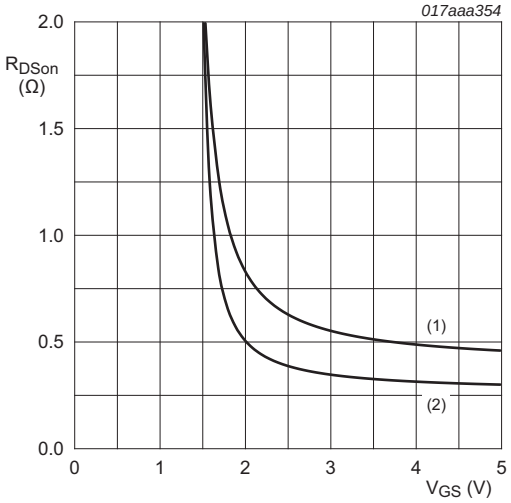
(3) $V_{GS}$ = 1.6 V

(4) $V_{GS}$ = 1.8 V

(5) $V_{GS}$ = 2.5 V

(6) $V_{GS}$ = 4.5 V

**Fig 11. TR1; Drain-source on-state resistance as a function of drain current; typical values**

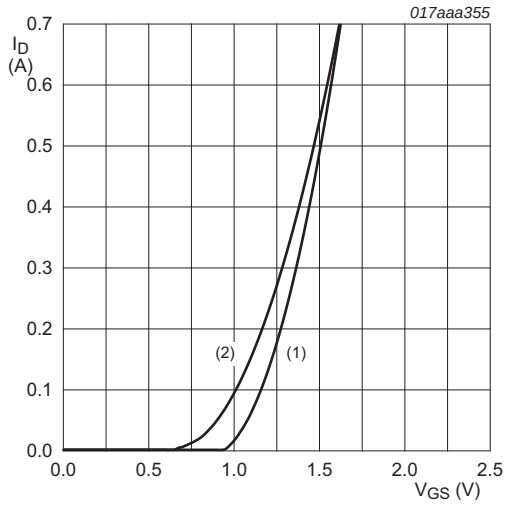



$I_D$ = 400 mA

(1) $T_j$ = 150 °C

(2) $T_j$ = 25 °C

**Fig 12. TR1; Drain-source on-state resistance as a function of gate-source voltage; typical values**

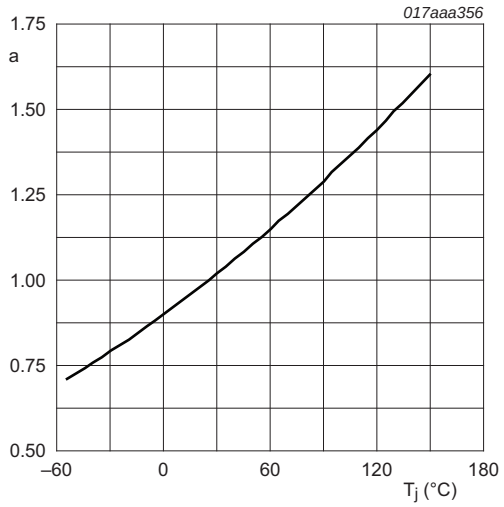



$V_{DS} > I_D \times R_{DSon}$

(1) $T_j$ = 25 °C

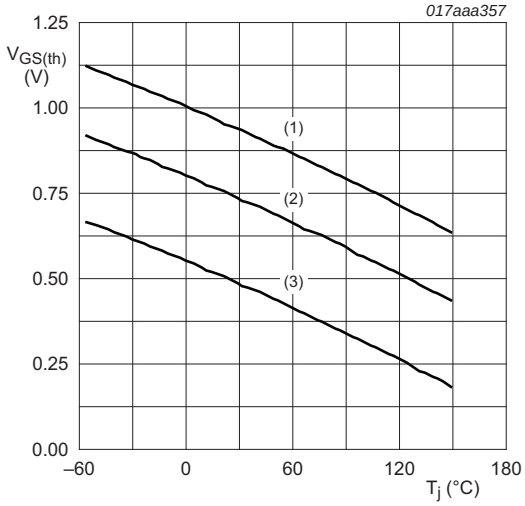
(2) $T_j$ = 150 °C

**Fig 13. TR1; Transfer characteristics: drain current as a function of gate-source voltage; typical values**




$$a = \frac{R_{DSon}}{R_{DSon(25°C)}}$$

**Fig 14. TR1; Normalized drain-source on-state resistance as a function of junction temperature; typical values**



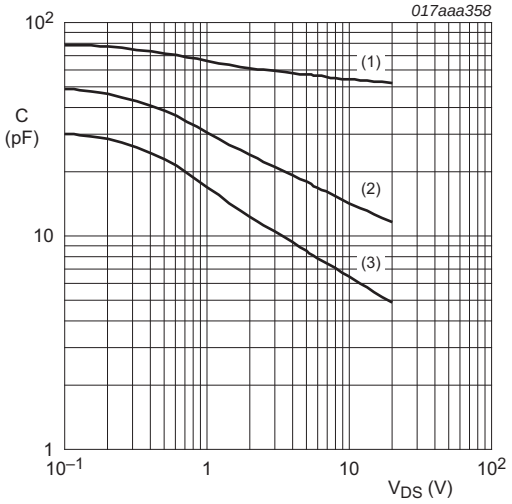

$I_D$ = 0.25 mA; $V_{DS} = V_{GS}$

(1) maximum values

(2) typical values

(3) minimum values

**Fig 15. TR1; Gate-source threshold voltage as a function of junction temperature**



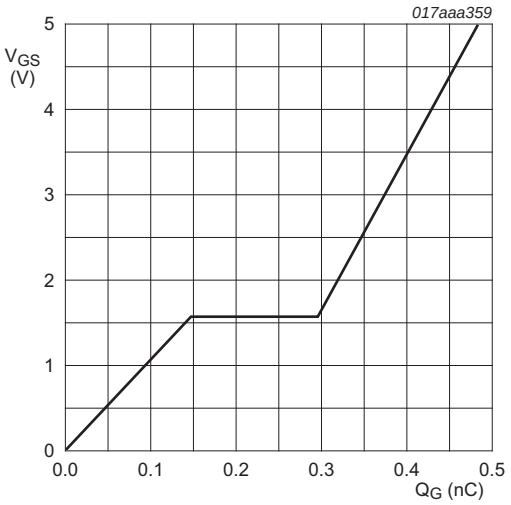

f = 1 MHz; $V_{GS}$ = 0 V

(1) $C_{iss}$

(2) $C_{oss}$

(3) $C_{rss}$

**Fig 16. TR1; Input, output and reverse transfer capacitances as a function of drain-source voltage; typical values**




$I_D$ = 0.5 A; $V_{DS}$ = 10 V; $T_{amb}$ = 25 °C

**Fig 17. TR1; Gate-source voltage as a function of gate charge; typical values**

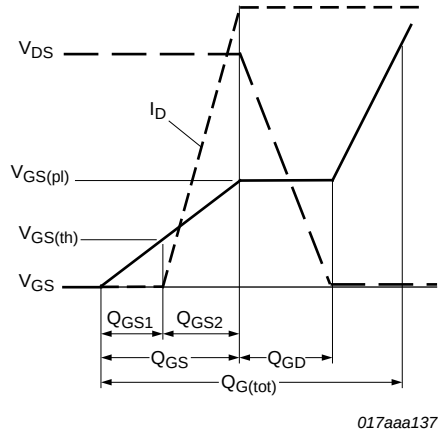
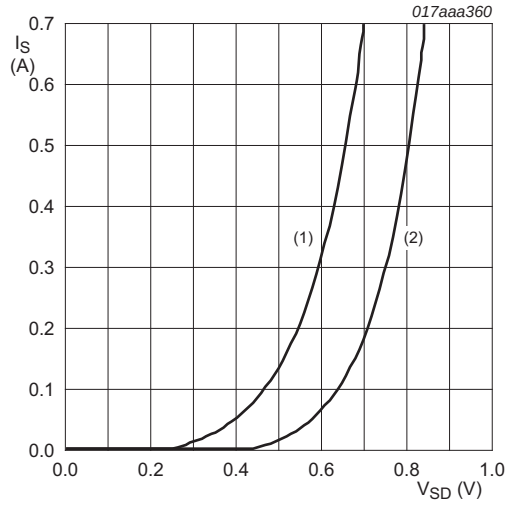



**Fig 18. Gate charge waveform definitions**

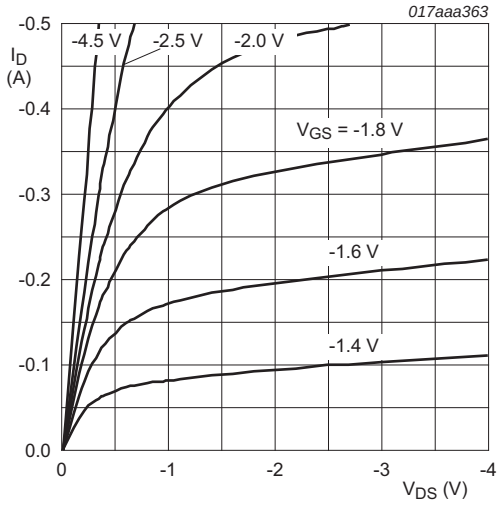



$V_{GS}$ = 0 V

(1) $T_j$ = 150 °C

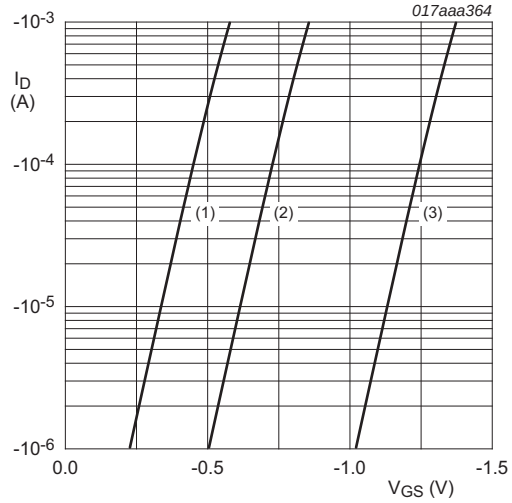
(2) $T_j$ = 25 °C

**Fig 19. TR1; Source current as a function of source-drain voltage; typical values**




$T_j$ = 25 °C

**Fig 20. TR2; Output characteristics: drain current as a function of drain-source voltage; typical values**



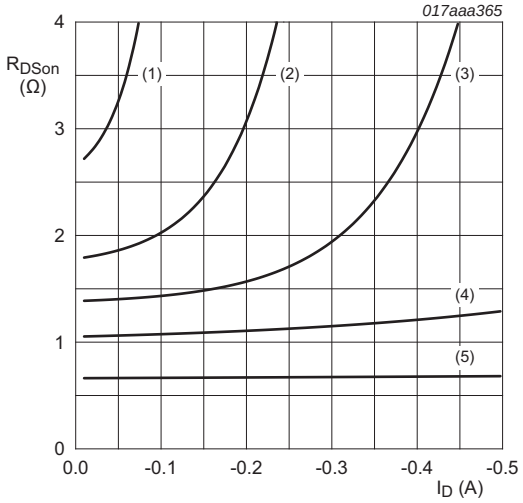

$T_j$ = 25 °C; $V_{DS}$ = -5 V

(1) minimum values

(2) typical values

(3) maximum values

**Fig 21. TR2; Sub-threshold drain current as a function of gate-source voltage**




$T_j$ = 25 °C

(1) $V_{GS}$ = -1.5 V

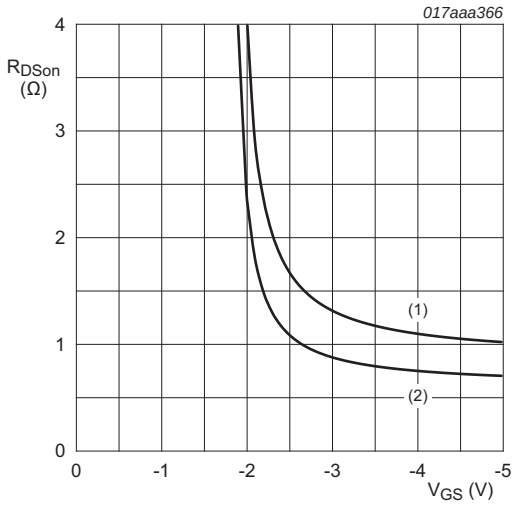
(2) $V_{GS}$ = -1.8 V

(3) $V_{GS}$ = -2.0 V

(4) $V_{GS}$ = -2.5 V

(5) $V_{GS}$ = -4.5 V

**Fig 22. TR2; Drain-source on-state resistance as a function of drain current; typical values**

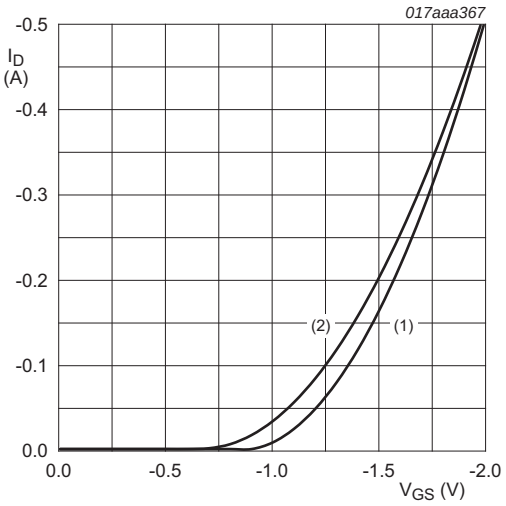



$I_D$ = -400 mA

(1) $T_j$ = 150 °C

(2) $T_j$ = 25 °C

**Fig 23. TR2; Drain-source on-state resistance as a function of gate-source voltage; typical values**

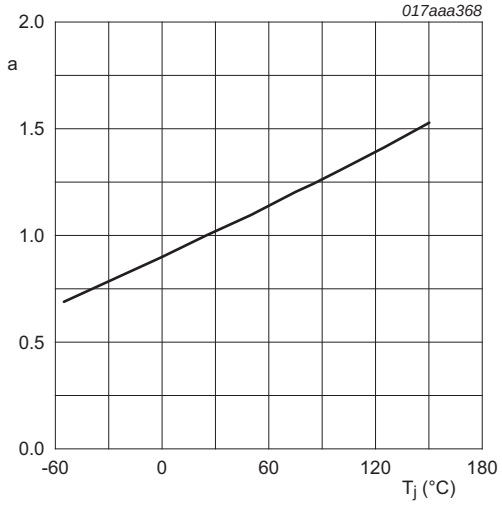



$V_{DS} > I_D \times R_{DSon}$

(1) $T_j$ = 25 °C

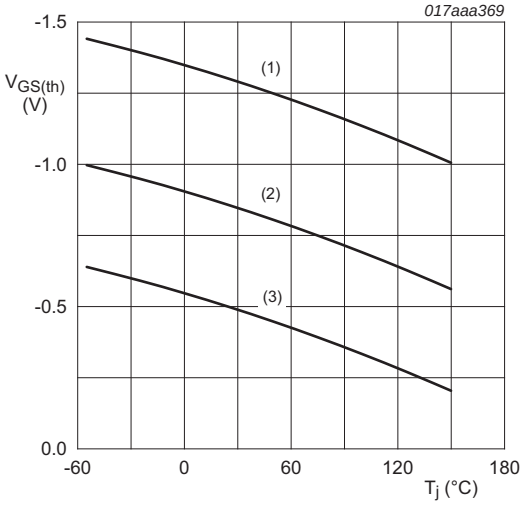
(2) $T_j$ = 150 °C

**Fig 24. TR2; Transfer characteristics: drain current as a function of gate-source voltage; typical values**




$$a = \frac{R_{DSon}}{R_{DSon(25°C)}}$$

**Fig 25. TR2; Normalized drain-source on-state resistance as a function of ambient temperature; typical values**



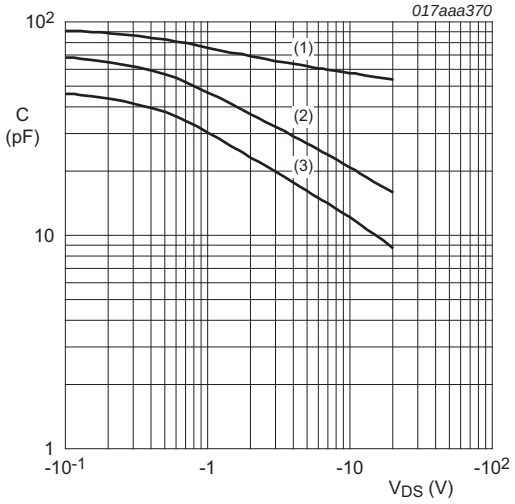

$I_D$ = -0.25 mA; $V_{DS}$ = $V_{GS}$

(1) maximum values

(2) typical values

(3) minimum values

**Fig 26. TR2; Gate-source threshold voltage as a function of junction temperature**



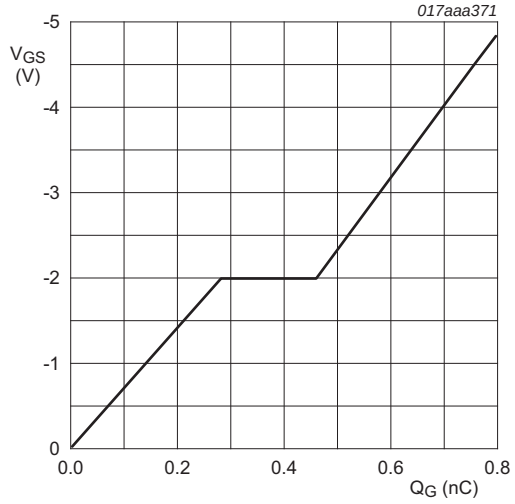

f = 1 MHz; $V_{GS}$ = 0 V

(1) $C_{iss}$

(2) $C_{oss}$

(3) $C_{rss}$

**Fig 27. TR2; Input, output and reverse transfer capacitances as a function of drain-source voltage; typical values**




$I_D$ = -0.4 A; $V_{DD}$ = -10 V; $T_{amb}$ = 25 °C

**Fig 28. TR2; Gate-source voltage as a function of gate charge; typical values**

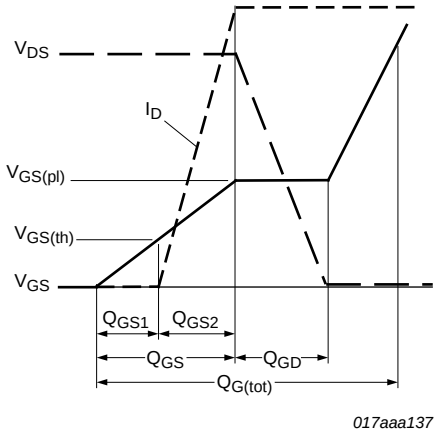
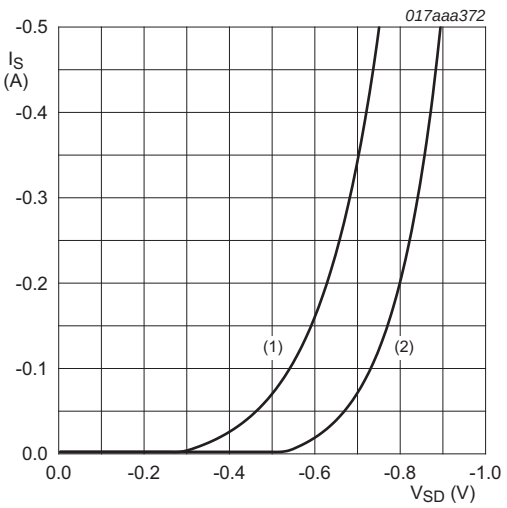



Fig 29. Gate charge waveform definitions




$V_{GS}$ = 0 V

(1) $T_{amb}$ = 150 °C

(2) $T_{amb}$ = 25 °C

Fig 30. TR2; Source current as a function of source-drain voltage; typical values

# 8. Test information

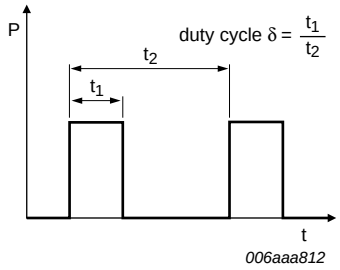


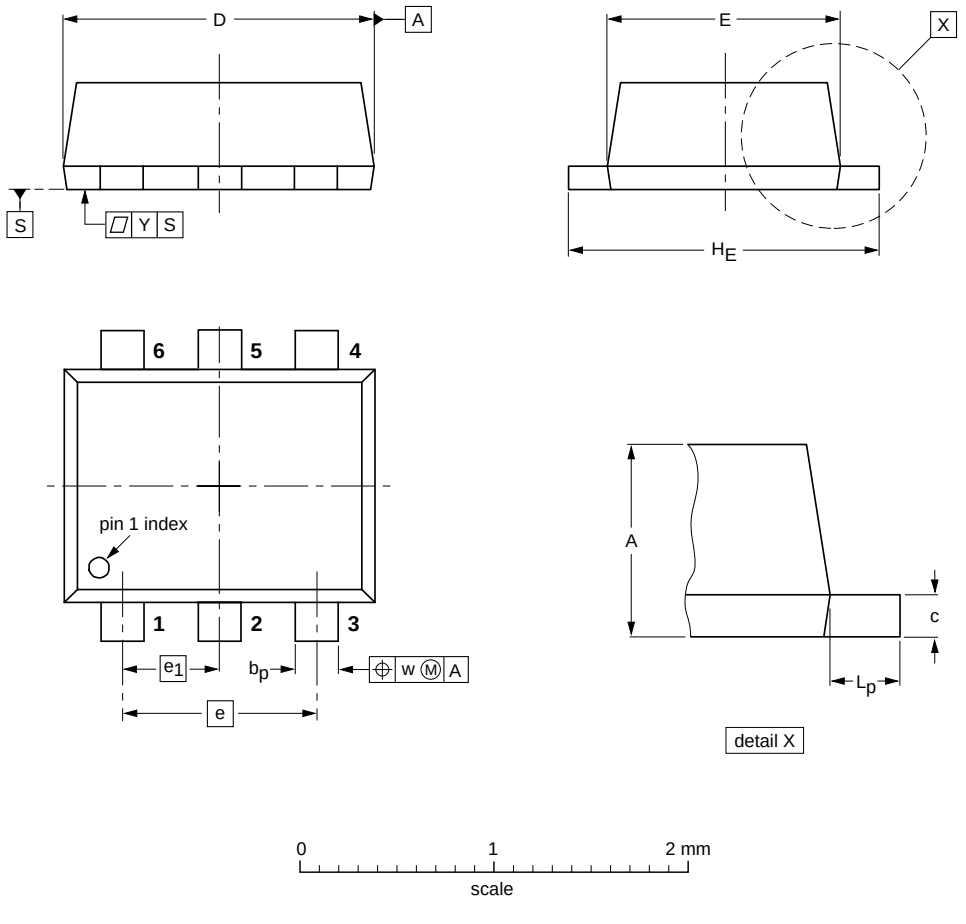

Fig 31. Duty cycle definition

## 8.1 Quality information

This product has been qualified in accordance with the Automotive Electronics Council (AEC) standard Q101 - Stress test qualification for discrete semiconductors, and is suitable for use in automotive applications.

## 9. Package outline

**Plastic surface-mounted package; 6 leads** **SOT666**




**DIMENSIONS (mm are the original dimensions)**

| UNIT | A | $b_p$ | c | D | E | e | $e_1$ | $H_E$ | $L_p$ | w | y |
|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | 0.6<br>0.5 | 0.27<br>0.17 | 0.18<br>0.08 | 1.7<br>1.5 | 1.3<br>1.1 | 1.0 | 0.5 | 1.7<br>1.5 | 0.3<br>0.1 | 0.1 | 0.1 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT666 | | | | | | ~~04-11-08~~<br>06-03-16 |

**Fig 32. Package outline SOT666**

## 10. Soldering

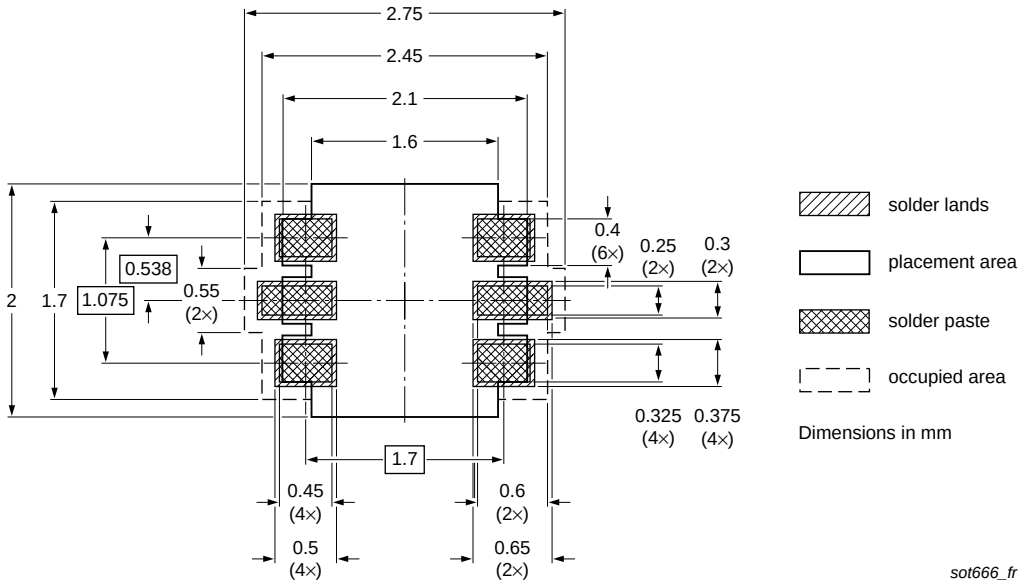



**Fig 33. Reflow soldering footprint for SOT666**

## 11. Revision history

**Table 8. Revision history**

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|---|---|---|---|---|
| PMDT290UCE v.1 | 20111006 | Product data sheet | - | - |

# 12. Legal information

## 12.1 Data sheet status

| Document status [1] [2] | Product status [3] | Definition |
|---|---|---|
| Objective [short] data sheet | Development | This document contains data from the objective specification for product development. |
| Preliminary [short] data sheet | Qualification | This document contains data from the preliminary specification. |
| Product [short] data sheet | Production | This document contains the product specification. |

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL http://www.nxp.com.

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## 14. Contents





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**Document identifier: PMDT290UCE**