

2N6661

1.0 ELECTRICAL CHARACTERISTICS

ABSOLUTE MAXIMUM RATINGS†

Drain-to-source voltage	BV_{DSS}
Drain-to-gate voltage	BV_{DGS}
Gate-to-source voltage	$\pm 20V$
Operating and Storage Temperature	-55 to 150 °C

† **Notice:** Stresses above those listed under “Maximum Ratings” may cause permanent damage to the device. This is a stress rating only and functional operation of the device at those or any other conditions above those indicated in the operational listings of this specification is not implied. Exposure to maximum rating conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS

Electrical Specifications: Unless otherwise specified, for all specifications T _A = +25°C						
Parameter	Symbol	Min	Typ	Max	Units	Conditions
DC Parameters (Note 1, unless otherwise stated)						
Drain-to-source breakdown voltage	BV _{DSS}	90	-	-	V	V _{GS} = 0V, I _D = 10μA
Gate threshold voltage	V _{GS(th)}	0.8	-	2.0	V	V _{GS} = V _{DS} , I _D = 1.0mA
V _{GS(th)} change with temperature	ΔV _{GS(th)}	-	-3.8	-5.5	mV/°C	V _{GS} = V _{DS} , I _D = 1.0mA (Note 2)
Gate body leakage current	I _{GSS}	-	-	100	nA	V _{GS} = ±20V, V _{DS} = 0V
Zero gate voltage drain current	I _{DSS}	-	-	10	μA	V _{GS} = 0V, V _{DS} = Max rating
		-	-	500		V _{DS} = 0.8 Max Rating, V _{GS} = 0V, T _A = 125°C (Note 2)
On-state drain current	I _{D(ON)}	1.5	-	-	A	V _{GS} = 10V, V _{DS} = 10V
Static drain-to-source on-state resistance	R _{DS(ON)}	-	-	5.0	Ω	V _{GS} = 5.0V, I _D = 0.3A
		-	-	4.0		V _{GS} = 10V, I _D = 1.0A
AC Parameters (Note 2)						
Forward transconductance	G _{FS}	170	-	-	mmho	V _{DS} = 25V, I _D = 0.5A
Input capacitance	C _{ISS}	-	-	50	pF	V _{GS} = 0V, V _{DS} = 24V, f = 1.0MHz
Common source output capacitance	C _{OSS}	-	-	40		
Reverse transfer capacitance	C _{RSS}	-	-	10		
Turn-on time	t _(ON)	-	-	10	ns	V _{DD} = 25V, I _D = 1.0A, R _{GEN} = 25Ω
Turn-off time	t _(OFF)	-	-	10		
Diode Parameters						
Diode forward voltage drop	V _{SD}	-	1.2	-	V	V _{GS} = 0V, I _{SD} = 1.0A (Note 1)
Reverse recovery time	t _{rr}	-	350	-	ns	V _{GS} = 0V, I _{SD} = 1.0A (Note 2)

Note 1: All DC parameters are 100% tested at 25°C unless otherwise stated. Pulse test: 300 μs pulse, 2% duty cycle.

2: Specification is obtained by characterization and is not 100% tested.

TEMPERATURE SPECIFICATIONS

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Temperature Ranges						
Operating and Storage Temperature	T_A	-55	-	150	°C	

THERMAL CHARACTERISTICS

Package	$I_D(1)$ continuous (mA)	I_D pulsed (A)	Power Dissipation @ $T_A = 25^\circ\text{C}$ (W)	$I_{DR}(1)$ (mA)	I_{DRM} (A)
TO-39	350	3.0	6.25	350	3.0

Note 1: I_D (continuous) is limited by max rated T_J .

Product Summary

BV_{DSX}/BV_{DGS} (V)	$R_{DS(ON)}$ (max) (Ω)	I_{DSS} (min) (A)
90	4.0	1.5

2.0 PIN DESCRIPTION

The locations of the pins are listed in [Package Types](#) and [Packaging Information](#).

TABLE 2-1: PIN DESCRIPTION

Pin # TO-39	Function
1	SOURCE
2	GATE
3	DRAIN

3.0 FUNCTIONAL DESCRIPTION

Figure 3-1 shows the switching waveform and test circuit for 2N6661.

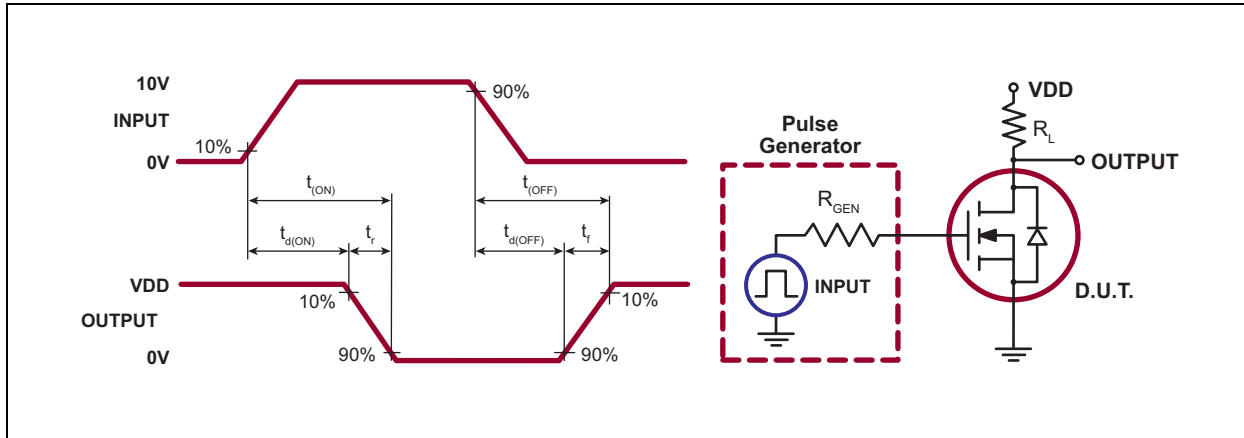
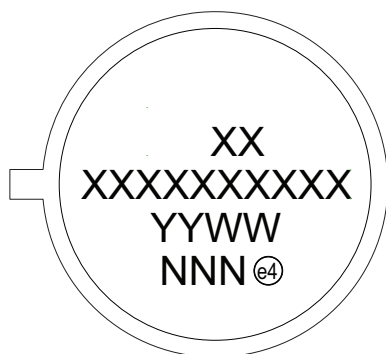


FIGURE 3-1: Switching Waveforms and Test Circuit

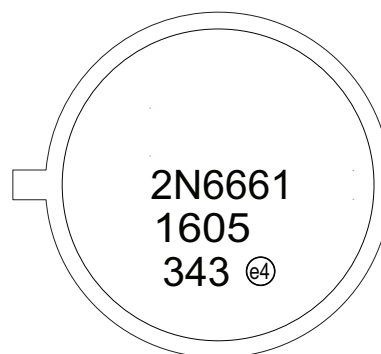
4.0 PACKAGING INFORMATION

4.1 Package Marking Information

3-Lead TO-39



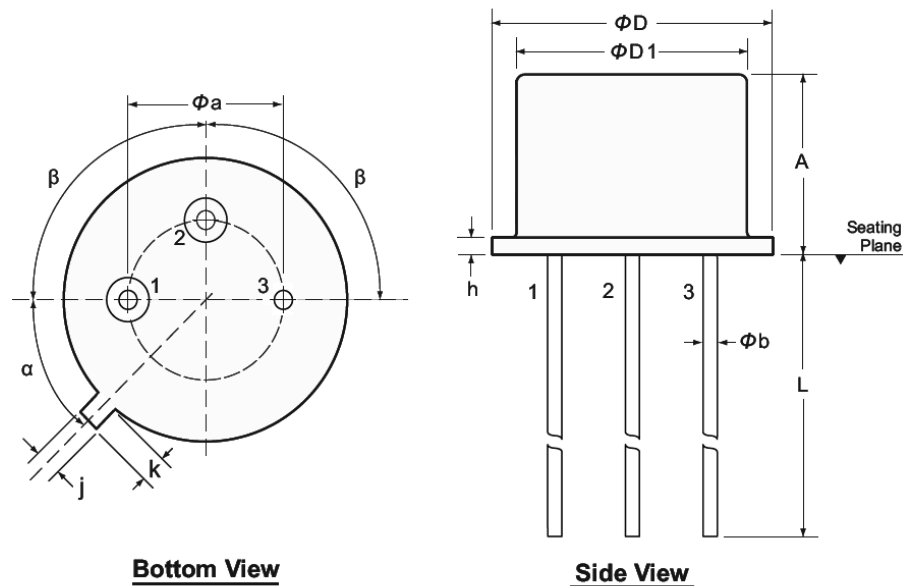
Example



Legend:	XX...X	Product Code or Customer-specific information
	Y	Year code (last digit of calendar year)
	YY	Year code (last 2 digits of calendar year)
	WW	Week code (week of January 1 is week '01')
	NNN	Alphanumeric traceability code
	(e3)	Pb-free JEDEC® designator for Matte Tin (Sn)
	*	This package is Pb-free. The Pb-free JEDEC designator (e3) can be found on the outer packaging for this package.

Note: In the event the full Microchip part number cannot be marked on one line, it will be carried over to the next line, thus limiting the number of available characters for product code or customer-specific information. Package may or not include the corporate logo.

3-Lead TO-39 Package Outline (N2)



Note: For the most current package drawings, see the Microchip Packaging Specification at www.microchip.com/packaging.

Symbol		α	β	A	ϕa	ϕb	ϕD	$\phi D1$	h	j	k	L
Dimension (inches)	MIN	45° NOM	90° NOM	.240	.190	.016	.350	.315	.009	.028	.029	.500
	NOM			-	-	-	-	-	-	-	-	-
	MAX			.260	.210	.021	.370	.335	.125	.034	.040	.560*

JEDEC Registration TO-39.
* This dimension is not specified in the JEDEC drawing.
Drawings not to scale.

APPENDIX A: REVISION HISTORY

Revision A (March 2016)

- Converted Supertex Doc #DSFP-2N6661 to Microchip DS20005516A.
- Minor text changes throughout.
- Update to [Features](#).

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2355 West Chandler Blvd.
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