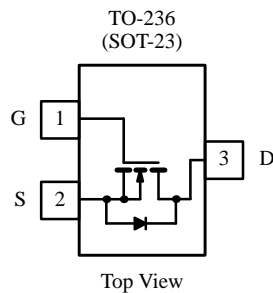


## N-Channel Enhancement-Mode MOSFET

### Product Summary

$V_{DS}$ (V)	$r_{DS(on)}$ ( $\Omega$ )	$I_D$ (A)
20	0.4 @ $V_{GS} = 4.5$ V	0.6
	0.5 @ $V_{GS} = 2.5$ V	0.5



TN0200T (N0)\*

\*Marking Code for TO-236

### Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	$\pm 8$	
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) <sup>b</sup>	$I_D$	$T_A = 25^\circ\text{C}$	A
		$T_A = 70^\circ\text{C}$	
Pulsed Drain Current <sup>a</sup>	$I_{DM}$	4	
Continuous Source Current (Diode Conduction) <sup>b</sup>	$I_S$	0.5	
Power Dissipation <sup>b</sup>	$P_D$	$T_A = 25^\circ\text{C}$	W
		$T_A = 70^\circ\text{C}$	
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to 150	$^\circ\text{C}$

### Thermal Resistance Ratings

Parameter	Symbol	Limit	Unit
Maximum Junction-to-Ambient <sup>b</sup>	$R_{thJA}$	550	$^\circ\text{C}/\text{W}$

#### Notes

- Pulse width limited by maximum junction temperature.
- Surface Mounted on FR4 Board,  $t \leq 10$  sec.

Subsequent updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document 2806#. A SPICE Model data sheet is available for this product (FaxBack document #5155).

## Specifications<sup>a</sup>

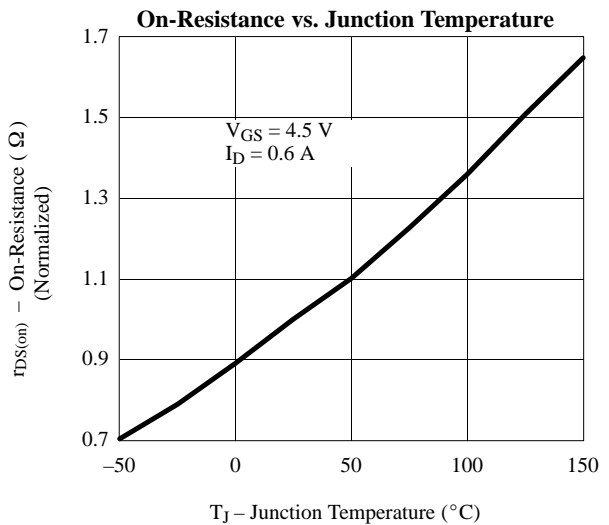
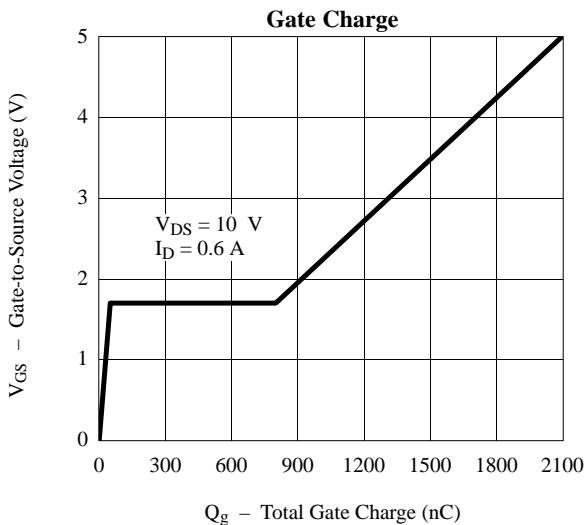
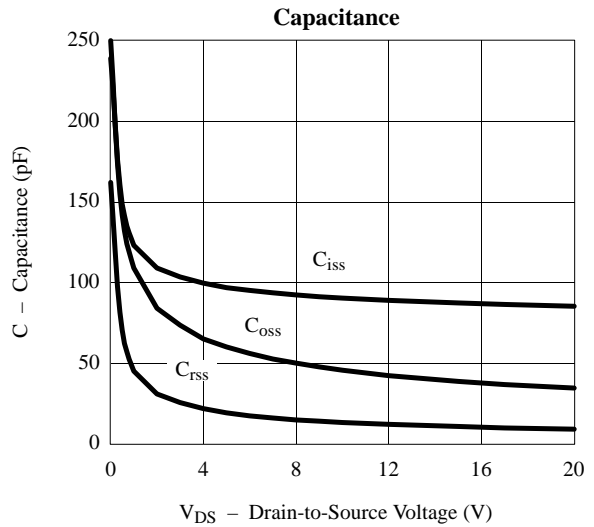
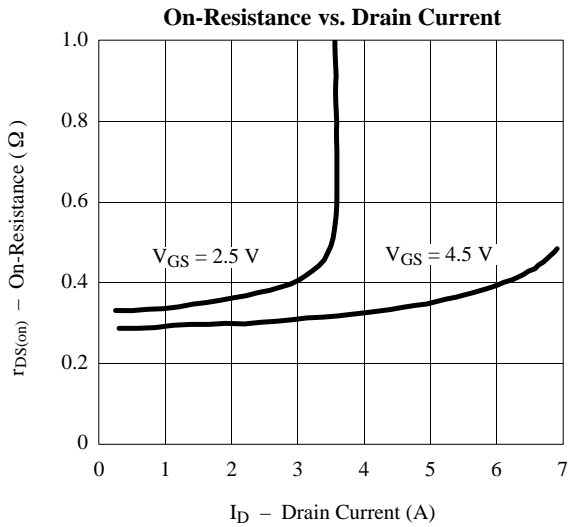
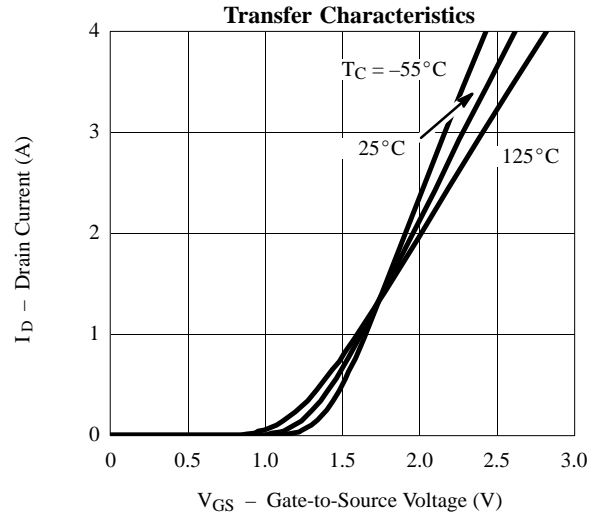
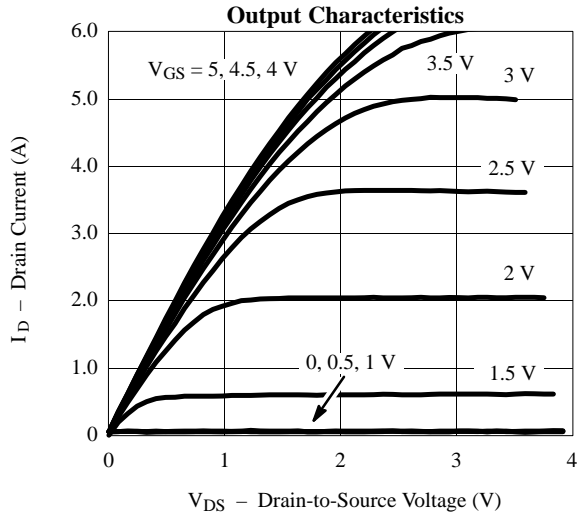
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
<b>Static</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = 10\text{ }\mu\text{A}$	20	36		V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 50\text{ }\mu\text{A}$	0.65			
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\text{ V}, V_{GS} = \pm 8\text{ V}$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 16\text{ V}, V_{GS} = 0\text{ V}$ $T_J = 55^\circ\text{C}$			1	$\mu\text{A}$
					10	
On-State Drain Current <sup>b</sup>	$I_{D(on)}$	$V_{DS} \geq 5\text{ V}, V_{GS} = 4.5\text{ V}$	2.5			A
		$V_{DS} \geq 5\text{ V}, V_{GS} = 2.5\text{ V}$	1.5			
Drain-Source On-Resistance <sup>b</sup>	$r_{DS(on)}$	$V_{GS} = 4.5\text{ V}, I_D = 0.6\text{ A}$		0.29	0.4	$\Omega$
		$V_{GS} = 2.5\text{ V}, I_D = 0.6\text{ A}$		0.34	0.5	
Forward Transconductance <sup>b</sup>	$g_{fs}$	$V_{DS} = 5\text{ V}, I_D = 0.6\text{ A}$		2.2		S
Diode Forward Voltage	$V_{SD}$	$I_S = 0.5\text{ A}, V_{GS} = 0\text{ V}$		0.8	1.2	V
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS} = 10\text{ V}, V_{GS} = 4.5\text{ V}, I_D = 0.6\text{ A}$		1900	2800	pC
Gate-Source Charge	$Q_{gs}$			50		
Gate-Drain Charge	$Q_{gd}$			750		
Input Capacitance	$C_{iss}$	$V_{DS} = 10\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$		90		pF
Output Capacitance	$C_{oss}$			45		
Reverse Transfer Capacitance	$C_{rss}$			12		
<b>Switching</b>						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 10\text{ V}, R_L = 16\text{ }\Omega$ $I_D \cong 0.6\text{ A}, V_{GEN} = 4.5\text{ V}, R_G = 6\text{ }\Omega$		8	13	ns
Rise Time	$t_r$			14	21	
Turn-Off Delay Time	$t_{d(off)}$			21	30	
Fall-Time	$t_f$			7	11	

Notes

- a.  $T_A = 25^\circ\text{C}$  unless otherwise noted.  
 b. Pulse test:  $PW \leq 300\text{ }\mu\text{s}$  duty cycle  $\leq 2\%$ .

VNLJ02

**Typical Characteristics (25°C Unless Otherwise Noted)**



## Typical Characteristics (25°C Unless Otherwise Noted)

