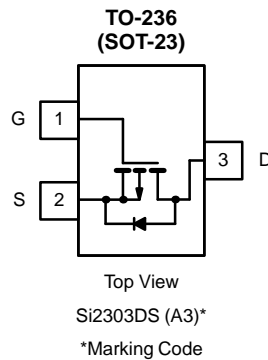




## P-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY		
$V_{DS}$ (V)	$r_{DS(on)}$ ( $\Omega$ )	$I_D$ (A)
-30	0.240 @ $V_{GS} = -10$ V	-1.7
	0.460 @ $V_{GS} = -4.5$ V	-1.3



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Unit
Drain-Source Voltage		$V_{DS}$	-30	V
Gate-Source Voltage		$V_{GS}$	$\pm 20$	
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) (surface mounted on FR4 board, $t \leq 5$ sec)	$T_A = 25^\circ\text{C}$	$I_D$	-1.7	A
	$T_A = 70^\circ\text{C}$		-1.4	
Pulsed Drain Current <sup>a</sup>		$I_{DM}$	-10	
Continuous Source Current (MOSFET Diode Conduction) (surface mounted on FR4 board, $t \leq 5$ sec)		$I_S$	-1.25	
Maximum Power Dissipation <sup>a</sup>	$T_A = 25^\circ\text{C}$	$P_D$	1.25	W
	$T_A = 70^\circ\text{C}$		0.8	
Operating Junction and Storage Temperature Range		$T_J, T_{stg}$	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS			
Parameter	Symbol	Typical	Unit
Maximum Junction-to-Ambient (surface mounted on FR4 board, $t \leq 5$ sec)	$R_{thJA}$	100	$^\circ\text{C/W}$
Maximum Junction-to-Ambient (surface mounted on FR4 board)		166	

Notes

a. Pulse width limited by maximum junction temperature.

For SPICE model information via the Worldwide Web: <http://www.vishay.com/www/product/spice.htm>



<b>MOSFET SPECIFICATIONS (T<sub>J</sub> = 25 °C UNLESS OTHERWISE NOTED)</b>						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0 V, I <sub>D</sub> = -10 μA	-30			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250 μA	-1.0			
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -30 V, V <sub>GS</sub> = 0 V			-1	μA
		V <sub>DS</sub> = -30 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55 °C			-10	
On-State Drain Current <sup>a</sup>	I <sub>D(on)</sub>	V <sub>DS</sub> ≥ -5 V, V <sub>GS</sub> = -10 V	-6			A
Drain-Source On-State Resistance <sup>a</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = -10 V, I <sub>D</sub> = -1.7 A		0.190	0.240	Ω
		V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -1.3 A		0.240	0.460	
Forward Transconductance <sup>a</sup>	g <sub>fs</sub>	V <sub>DS</sub> = -10 V, I <sub>D</sub> = -1.7 A		2.4		S
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> = -1.25 A, V <sub>GS</sub> = 0 V		-0.8	-1.2	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -15 V, V <sub>GS</sub> = -10 V, I <sub>D</sub> = -1.7 A		5.8	10	nC
Gate-Source Charge	Q <sub>gs</sub>			0.8		
Gate-Drain Charge	Q <sub>gd</sub>			1.5		
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -15 V, V <sub>GS</sub> = 0 V, f = 1 MHz		226		pF
Output Capacitance	C <sub>oss</sub>			87		
Reverse Transfer Capacitance	C <sub>rss</sub>			19		
<b>Switching<sup>b</sup></b>						
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = -15 V, R <sub>L</sub> = 15 Ω I <sub>D</sub> ≅ -1 A, V <sub>GEN</sub> = -10 V, R <sub>G</sub> = 6 Ω		9	20	ns
Rise Time	t <sub>r</sub>			9	20	
Turn-Off Delay Time	t <sub>d(off)</sub>			18	35	
Fall Time	t <sub>f</sub>			6	20	

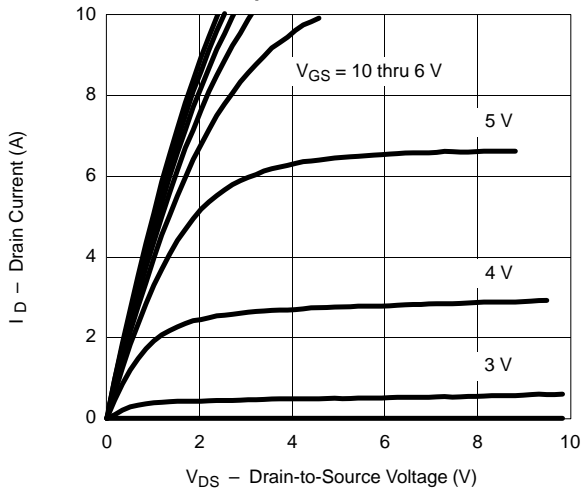
**Notes**

- a. Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.
- b. For DESIGN AID ONLY, not subject to production testing.
- c. Switching time is essentially independent of operating temperature.

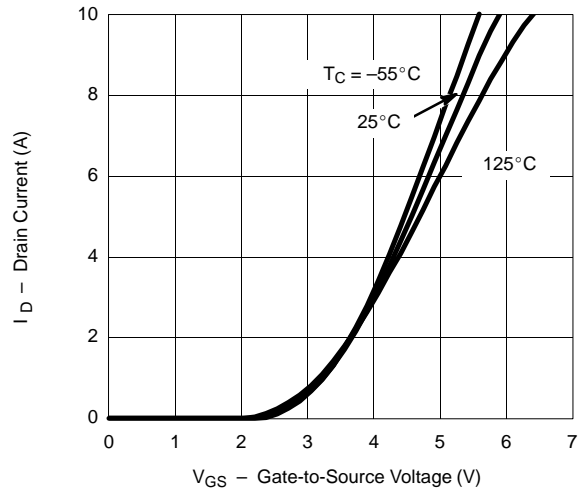


**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**

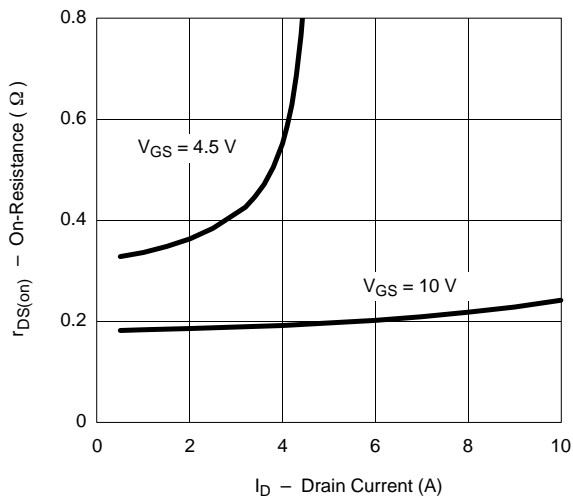
**Output Characteristics**



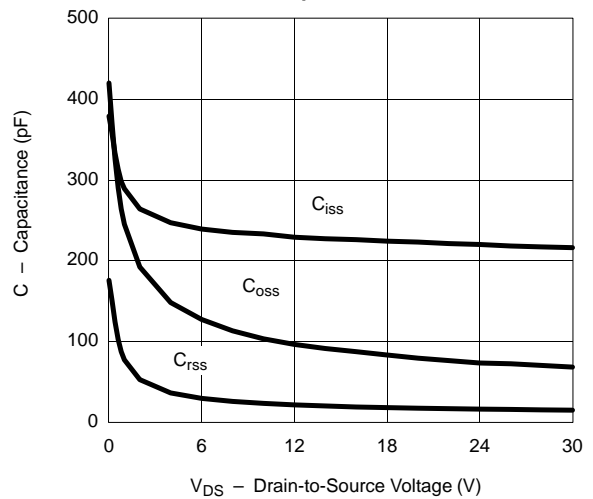
**Transfer Characteristics**



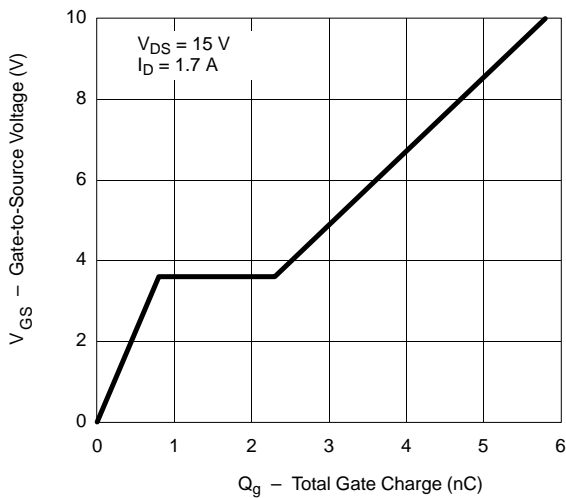
**On-Resistance vs. Drain Current**



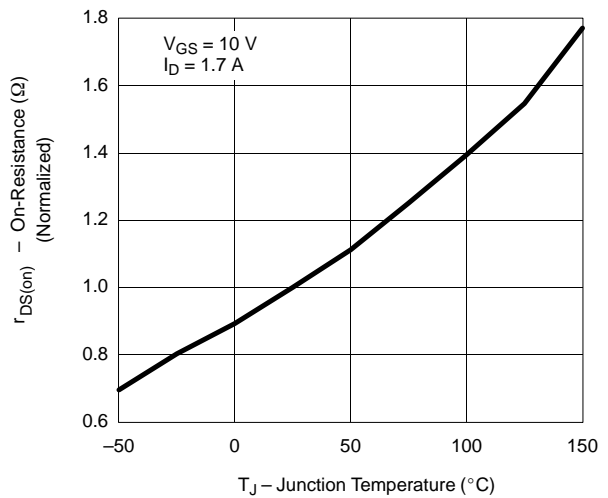
**Capacitance**



**Gate Charge**



**On-Resistance vs. Junction Temperature**



**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) MOSFET**

