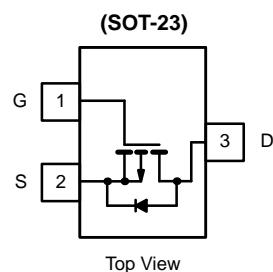


P-Channel 1.25-W, 2.5-V MOSFET

PRODUCT SUMMARY

V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-20	0.130 @ $V_{GS} = -4.5$ V	-2.3
	0.190 @ $V_{GS} = -2.5$ V	-1.9



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}	± 8	
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^b	I_D	-2.3	A
		-1.5	
Pulsed Drain Current ^a	I_{DM}	-10	
Continuous Source Current (Diode Conduction) ^b	I_S	-1.6	
Power Dissipation ^b	P_D	1.25	W
		0.8	
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 ^b	R_{thJA}	100	$^\circ\text{C}/\text{W}$
Maximum Junction-to-Ambient ^c		166	$^\circ\text{C}/\text{W}$

Notes

- a. Pulse width limited by maximum junction temperature.
- b. Surface Mounted on FR4 Board, $t \leq 5$ sec.
- c. Surface Mounted on FR4 Board.

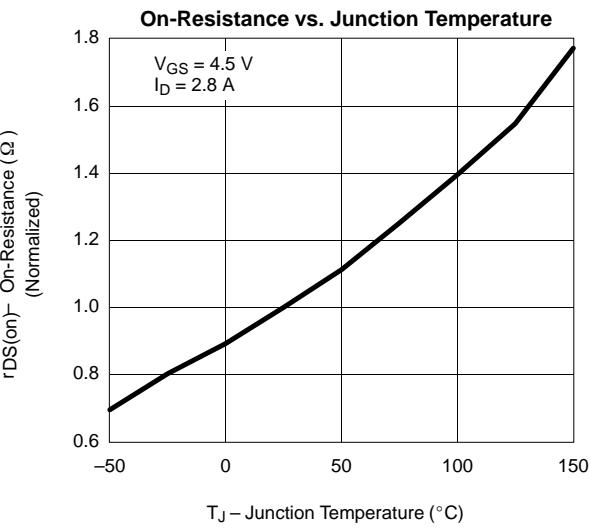
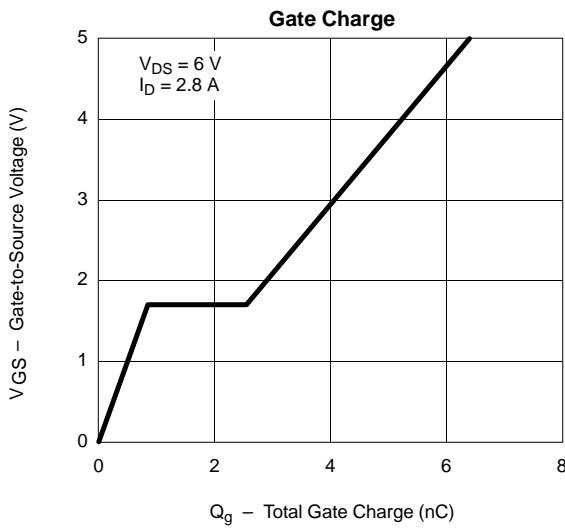
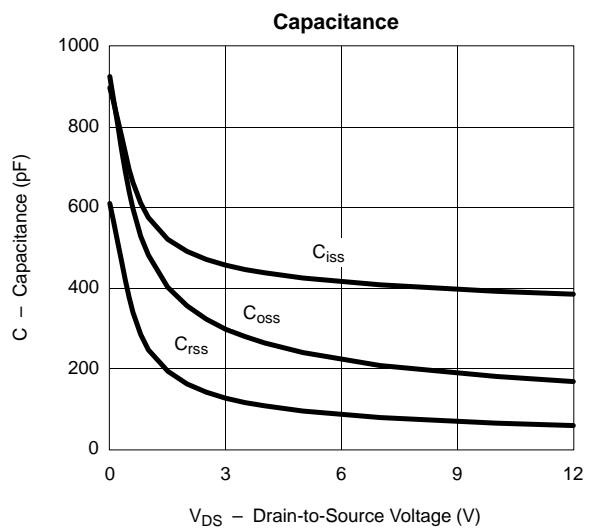
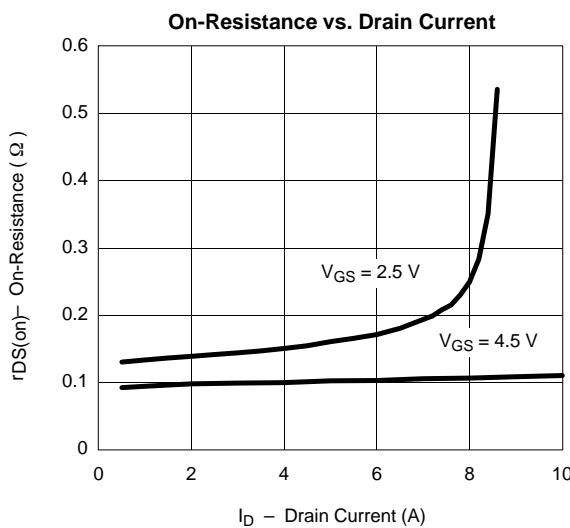
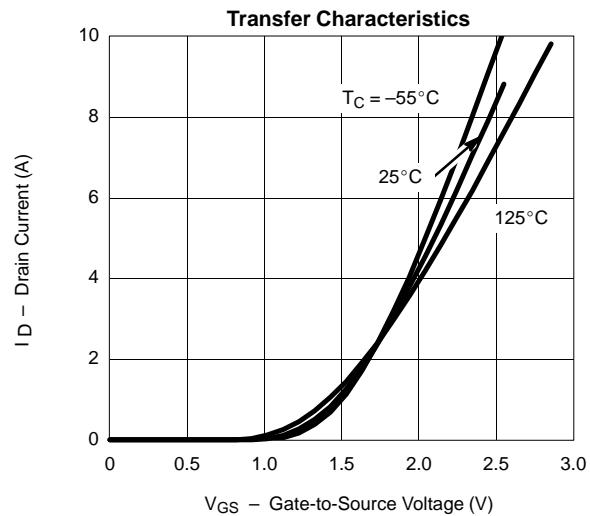
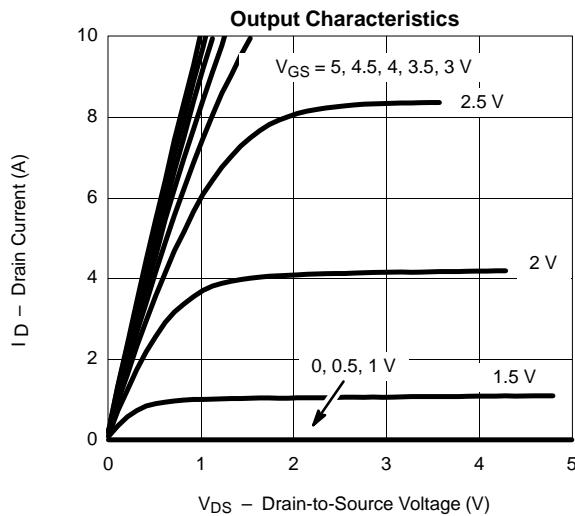
BM2301

SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Drain-Source Breakdown Voltage	$V_{(\text{BR})\text{DSS}}$	$V_{\text{GS}} = 0 \text{ V}, I_D = -250 \mu\text{A}$	-20			V
Gate-Threshold Voltage	$V_{\text{GS}(\text{th})}$	$V_{\text{DS}} = V_{\text{GS}}, I_D = -250 \mu\text{A}$	-0.45			
Gate-Body Leakage	I_{GSS}	$V_{\text{DS}} = 0 \text{ V}, V_{\text{GS}} = \pm 8 \text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{\text{DS}} = -16 \text{ V}, V_{\text{GS}} = 0 \text{ V}$			-1	μA
		$V_{\text{DS}} = -16 \text{ V}, V_{\text{GS}} = 0 \text{ V}, T_J = 55^\circ\text{C}$			-10	
On-State Drain Current ^a	$I_{\text{D(on)}}$	$V_{\text{DS}} \leq -5 \text{ V}, V_{\text{GS}} = -4.5 \text{ V}$	-6			A
		$V_{\text{DS}} \leq -5 \text{ V}, V_{\text{GS}} = -2.5 \text{ V}$	-3			
Drain-Source On-Resistance ^a	$r_{\text{DS(on)}}$	$V_{\text{GS}} = -4.5 \text{ V}, I_D = -2.8 \text{ A}$		0.105	0.130	Ω
		$V_{\text{GS}} = -2.5 \text{ V}, I_D = -2.0 \text{ A}$		0.145	0.190	
Forward Transconductance ^a	g_{fs}	$V_{\text{DS}} = -5 \text{ V}, I_D = -2.8 \text{ A}$		6.5		S
Diode Forward Voltage	V_{SD}	$I_S = -1.6 \text{ A}, V_{\text{GS}} = 0 \text{ V}$		-0.80	-1.2	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{\text{DS}} = -6 \text{ V}, V_{\text{GS}} = -4.5 \text{ V}$ $I_D \approx -2.8 \text{ A}$		5.8	10	nC
Gate-Source Charge	Q_{gs}			0.85		
Gate-Drain Charge	Q_{gd}			1.70		
Input Capacitance	C_{iss}	$V_{\text{DS}} = -6 \text{ V}, V_{\text{GS}} = 0, f = 1 \text{ MHz}$		415		pF
Output Capacitance	C_{oss}			223		
Reverse Transfer Capacitance	C_{rss}			87		
Switching^c						
Turn-On Time	$t_{\text{d(on)}}$	$V_{\text{DD}} = -6 \text{ V}, R_L = 6 \Omega$ $I_D \approx -1.0 \text{ A}, V_{\text{GEN}} = -4.5 \text{ V}$ $R_G = 6 \Omega$		13.0	25	ns
	t_r			36.0	60	
Turn-Off Time	$t_{\text{d(off)}}$			42	70	
	t_f			34	60	

Notes

- a. Pulse test: $PW \leq 300 \mu\text{s}$ duty cycle $\leq 2\%$.
- 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)

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

