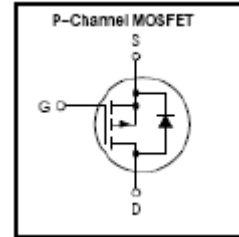


**-30V P-Channel MOSFET**

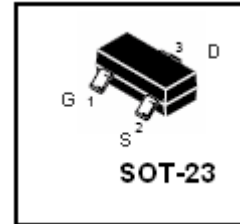
**Features**

- -4.3A, -30V,  $R_{DS(on)}$ (Max 58m $\Omega$ )@ $V_{GS}=-4.5V$
- -2.5V Rated for Low Voltage Gate Drive
- SOT-23 Surface Mount for Small Footprint
- Single Pulse Avalanche Energy Rated



**General Description**

This Power MOSFET is produced using Winsemi's advanced MOS technology. This latest technology has been especially designed to minimize on-state resistance, have a high rugged avalanche characteristics. This devices is specially well suited for Load/Power Management for Portables and Computing, Charging Circuits and Battery Protection



**Absolute Maximum Ratings**( $T_c=25^{\circ}C$  unless otherwise noted)

Symbol	Parameter		Value	Units
$V_{DSS}$	Drain Source Voltage		-30	V
$V_{GSS}$	Gate-to-Source Voltage		$\pm 12$	V
$I_D$	Continuous Drain Current		-4.3	A
$I_{DM}$	Drain Current Pulsed	$PW \leq 10\mu s, \text{duty cycle} \leq 1\%$	-25	A
$P_D$	Allowable Power Dissipation	Mounted on a ceramic board (1000mm <sup>2</sup> × 0.8mm) lunit	0.25	W
$P_T$	Total Dissipation	Mounted on a ceramic board (1000mm <sup>2</sup> × 0.8mm)	0.3	
$T_{ch}$	Channel Temperature		150	$^{\circ}C$
$T_{stg}$	Storage Temperature		-55~150	$^{\circ}C$

Electrical Characteristics (T<sub>c</sub> = 25°C)

Characteristics		Symbol	Test Condition	Min	Type	Max	Unit
Gate leakage current(Note 4)		I <sub>GSS</sub>	V <sub>GS</sub> = ±12 V, V <sub>DS</sub> = 0 V	-	-	±100	nA
Drain cut-off current(Note 4)		I <sub>DSS</sub>	V <sub>DS</sub> = -30V, V <sub>GS</sub> = 0 V	-	-	-1	μA
Drain-source breakdown voltage		V <sub>(BR)DSS</sub>	I <sub>D</sub> = -250 μA, V <sub>GS</sub> = 0 V	-30	-	-	V
Gate threshold voltage		V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> I <sub>D</sub> = -250 μA	-0.6	-1.0	-1.3	V
Drain-source ON resistance		R <sub>DS(ON)</sub>	V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -3.5 A	-	52	58	mΩ
			V <sub>GS</sub> = -2.5 V, I <sub>D</sub> = -2.5 A		72	80	
Input capacitance		C <sub>ISS</sub>	V <sub>DS</sub> = -15V,	-	933	1200	pF
Reverse transfer capacitance		C <sub>RSS</sub>	V <sub>GS</sub> = 0 V,	-	81	-	
Output capacitance		C <sub>OSS</sub>	f = 1 MHz	-	108	-	
Switching time (Note 5)	Turn-on Delay time	t <sub>d(on)</sub>	V <sub>GS</sub> = 10 V, V <sub>DS</sub> = -15V,	-	5.2	-	ns
	Rise time	t <sub>r</sub>		-	6.8	-	
	Turn-off Delay time	t <sub>d(off)</sub>	R <sub>G</sub> = 6 Ω,	-	42	-	
	Turn-off Fall time	t <sub>f</sub>	R <sub>L</sub> = 3.5 Ω	-	15	-	
Total gate charge		Q <sub>g</sub>	V <sub>GS</sub> = -4.5V,	-	9.3	12.2	nC
Gate-source charge		Q <sub>gs</sub>	V <sub>DS</sub> = -15 V,	-	1.5	-	
Gate-drain ("miller") Charge		Q <sub>gd</sub>	I <sub>D</sub> = -4.3 A	-	3.7	-	
Diode Forward Voltage		V <sub>SD</sub>	I <sub>S</sub> = -1, V <sub>GS</sub> = 0V		-0.75	-1.0	V

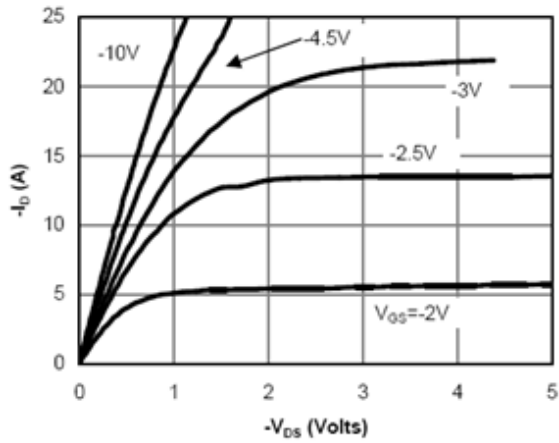


Figure 1: On-Region Characteristics

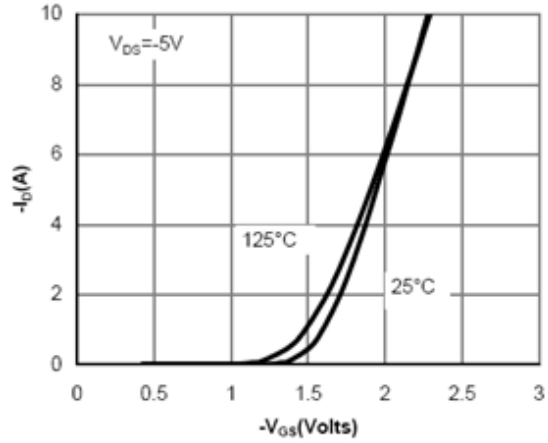


Figure 2: Transfer Characteristics

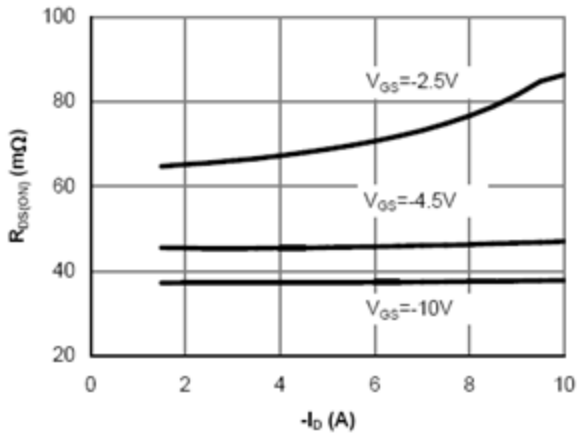


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

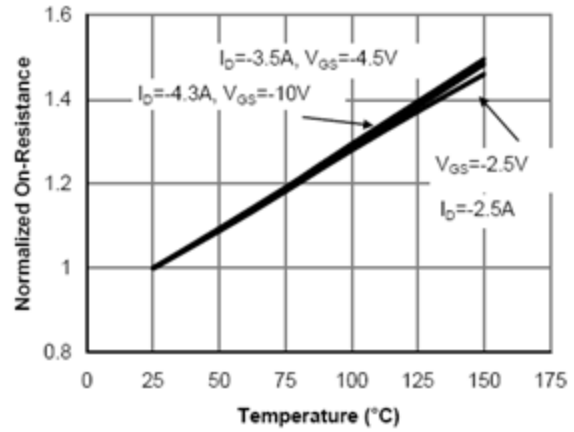


Figure 4: On-Resistance vs. Junction Temperature

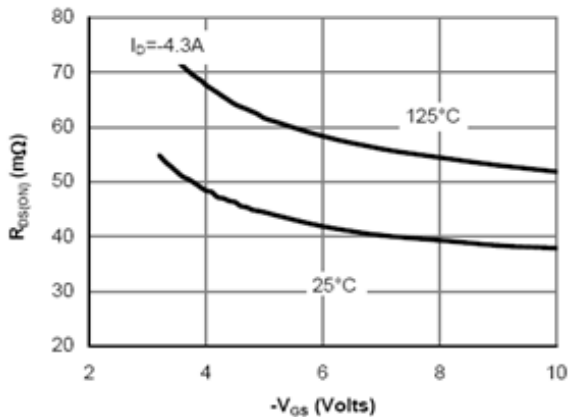


Figure 5: On-Resistance vs. Gate-Source Voltage

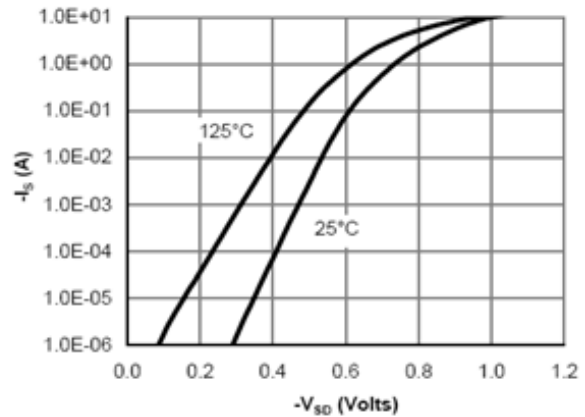


Figure 6: Body-Diode Characteristics

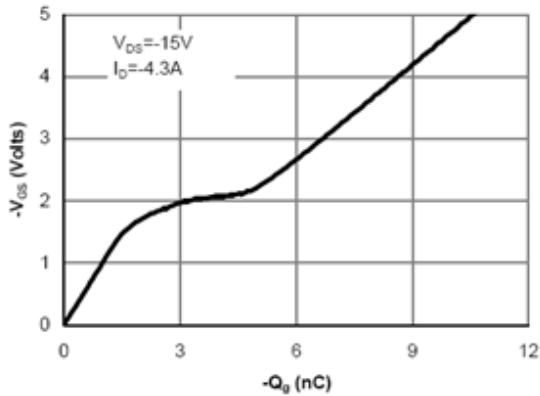


Figure 7: Gate-Charge Characteristics

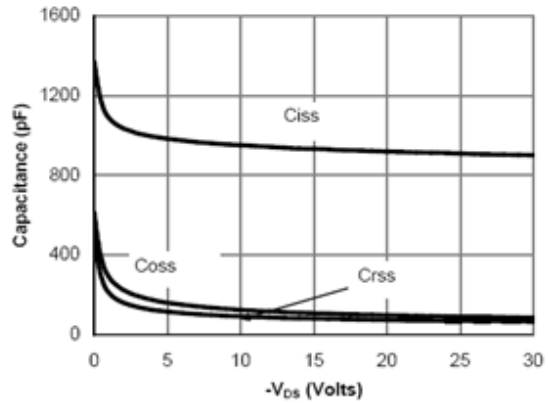


Figure 8: Capacitance Characteristics

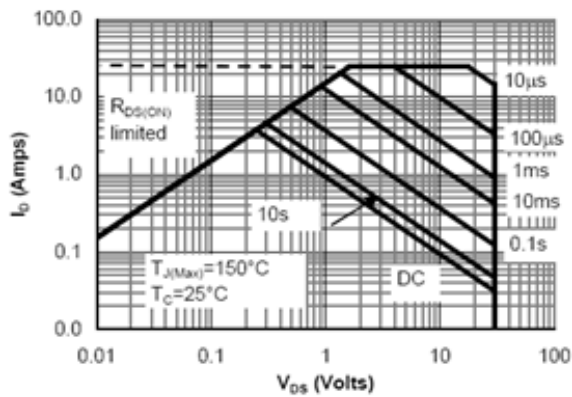


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

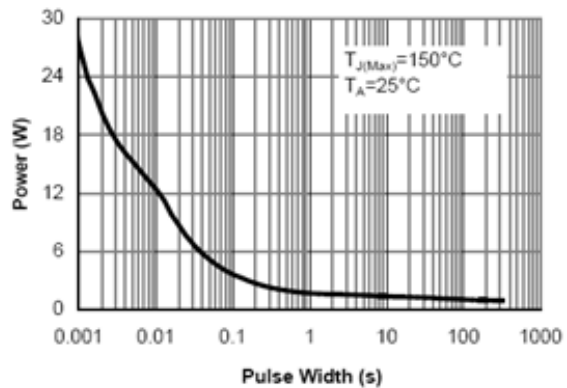


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

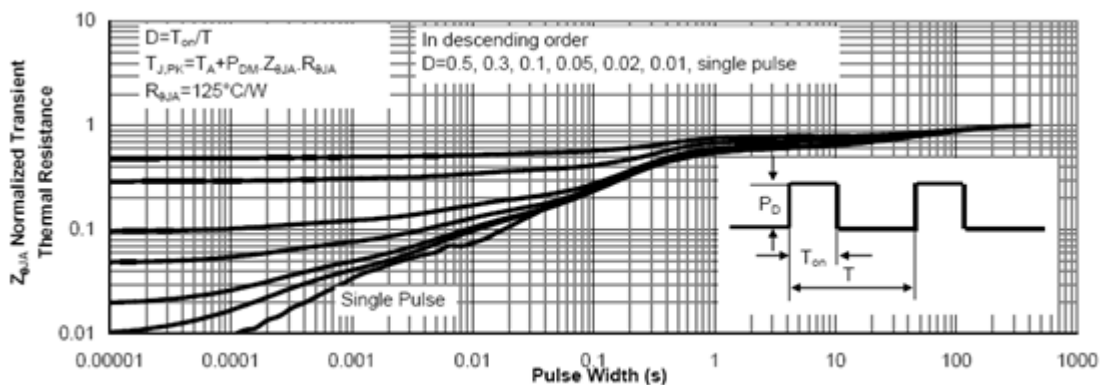


Figure 11: Normalized Maximum Transient Thermal Impedance

**SOT-23 Package Dimension**

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.95		0.037	
A1	1.90		0.074	
B	2.60	3.00	0.102	0.118
C	1.40	1.70	0.055	0.067
D	2.80	3.10	0.110	0.122
E	1.00	1.30	0.039	0.051
F	0.00	0.10	0.000	0.004
G	0.35	0.50	0.014	0.020
H	0.10	0.20	0.004	0.008
I	0.30	0.60	0.012	0.024
J	50°	10°	50°	10°

