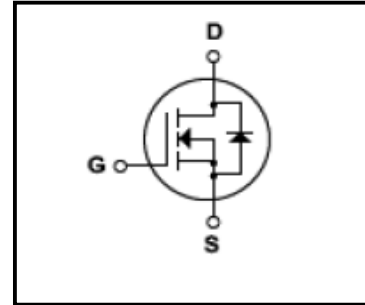


Silicon N-Channel MOSFET

Features

- 33A,100V, $R_{DS(on)}$ (Max0.044 Ω)@ $V_{GS}=10V$
- Ultra-low Gate charge(Typical 25nC)
- Fast Switching Capability
- 100%Avalanche Tested
- Isolation Voltage ($V_{ISO}=4000V$ AC)
- Maximum Junction Temperature Range(150 $^{\circ}C$)



General Description

This Power MOSFET is produced using Winsemi's advanced planar stripe, DMOS 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 half bridge and full bridge resonant topology line a electronic lamp ballast, high efficiency switched mode power supplies, active power factor correction.



Absolute Maximum Ratings

Symbol	Parameter	Value	Units
V_{DSS}	Drain Source Voltage	100	V
I_D	Continuous Drain Current(@ $T_c=25^{\circ}C$)	33*	A
	Continuous Drain Current(@ $T_c=100^{\circ}C$)	23*	A
I_{DM}	Drain Current Pulsed (Note1)	132	A
V_{GS}	Gate to Source Voltage	± 30	V
E_{AS}	Single Pulsed Avalanche Energy (Note2)	435	mJ
E_{AR}	Repetitive Avalanche Energy (Note1)	12.7	mJ
dv/dt	Peak Diode Recovery dv /dt (Note3)	6.0	V/ ns
P_D	Total Power Dissipation(@ $T_c=25^{\circ}C$)	127	W
	Derating Factor above 25 $^{\circ}C$	0.85	W/ $^{\circ}C$
T_J, T_{stg}	Junction and Storage Temperature	-40~150	$^{\circ}C$
T_L	Channel Temperature	300	$^{\circ}C$

*Drain current limited by junction temperature

Thermal Characteristics

Symbol	Parameter	Value			Units
		Min	Typ	Max	
R_{QJC}	Thermal Resistance , Junction -to -Case	-	-	1.18	$^{\circ}C/W$
R_{QJA}	Thermal Resistance , Junction-to -Ambient	-	-	62.5	$^{\circ}C/W$

Electrical Characteristics(Tc=25°C)

Characteristics		Symbol	Test Condition	Min	Type	Max	Unit
Gate leakage current		I_{GSS}	$V_{GS}=\pm 30V, V_{DS}=0V$	-	-	± 100	nA
Gate-source breakdown voltage		$V_{(BR)GSS}$	$I_G=\pm 10 \mu A, V_{DS}=0V$	± 30	-	-	V
Drain cut -off current		I_{DSS}	$V_{DS}=100V, V_{GS}=0V, T_c=25^\circ C$	-	-	1	μA
			$V_{DS}=80V, T_c=150^\circ C$	-	-	10	μA
Drain -source breakdown voltage		$V_{(BR)DSS}$	$I_D=250 \mu A, V_{GS}=0V$	100	-	-	V
Breakdown Voltage Temperature Coefficient		$\Delta BV_{DSS}/\Delta T_J$	$I_D=250 \mu A$, referenced to 25°C	-	0.11	-	V/°C
Gate threshold voltage		$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250 \mu A$	2	-	4	V
Drain -source ON resistance		$R_{DS(ON)}$	$V_{GS}=10V, I_D=16.5A$	-	-	0.044	Ω
Forward Transconductance		g_{fs}	$V_{DS}=40V, I_D=16.5A$	-	22	-	S
Input capacitance		C_{iss}	$V_{DS}=25V,$ $V_{GS}=0V,$ $f=1MHz$	-	1150	1500	pF
Reverse transfer capacitance		C_{rss}		-	62	80	
Output capacitance		C_{oss}		-	320	420	
Switching time	Turn-On Rise time	t_r	$V_{DD}=50V,$ $I_D=33A$ $R_G=25\Omega$ (Note4,5)	-	195	400	ns
	Turn-On time	$T_d(on)$		-	15	40	
	Turn-Off Fall time	t_f		-	110	230	
	Turn-Off time	$T_d(off)$		-	80	170	
Total gate charge(gate-source plus gate-drain)		Q_g	$V_{DD}=80V,$ $V_{GS}=10V,$ $I_D=33A$ (Note4,5)	-	38	51	nC
Gate-source charge		Q_{gs}		-	7.5	-	
Gate-drain("miller") Charge		Q_{gd}		-	18	-	

Source-Drain Ratings and Characteristics(Ta=25°C)

Characteristics		Symbol	Test Condition	Min	Type	Max	Unit
Continuous drain reverse current		I_{DR}	-	-	-	33	A
Pulse drain reverse current		I_{DRP}	-	-	-	132	A
Forward voltage(diode)		V_{DSF}	$I_{DR}=7.5A, V_{GS}=0V$	-	-	1.4	V
Reverse recovery time		t_{rr}	$I_{DR}=7.5A, V_{GS}=0V,$ $dI_{DR} / dt = 100 A / \mu s$	-	80	-	ns
Reverse recovery charge		Q_{rr}		-	0.22	-	μC

Note 1.Repeativity rating :pulse width limited by junction temperature

2.L=0.6mH $I_{AS}=33A, V_{DD}=25V, R_G=25\Omega,$ Starting $T_J=25^\circ C$

3. $I_{SD}\leq 33.A, di/dt\leq 300A/us, V_{DD}<BV_{DSS},$ STARTING $T_J=25^\circ C$

4.Pulse Test:Pulse Width $\leq 300us,$ Duty Cycles $\leq 2\%$

5. Essentially independent of operating temperature.

This transistor is an electrostatic sensitive device

Please handle with caution

Typical Characteristics

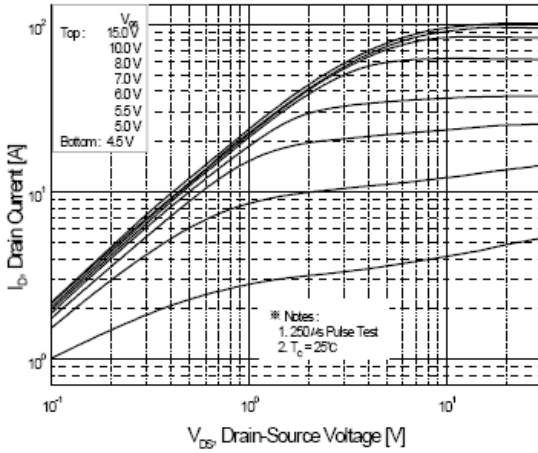


Figure 1. On-Region Characteristics

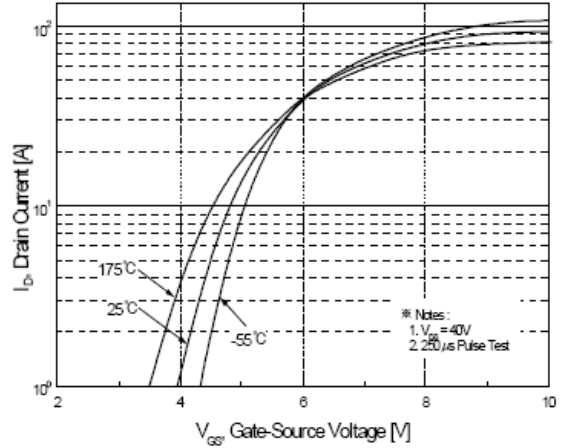


Figure 2. Transfer Characteristics

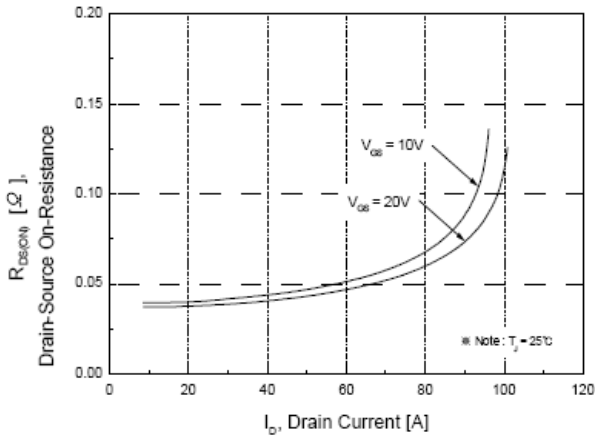


Figure 3. On-Resistance Variation vs. Drain Current and Gate Voltage

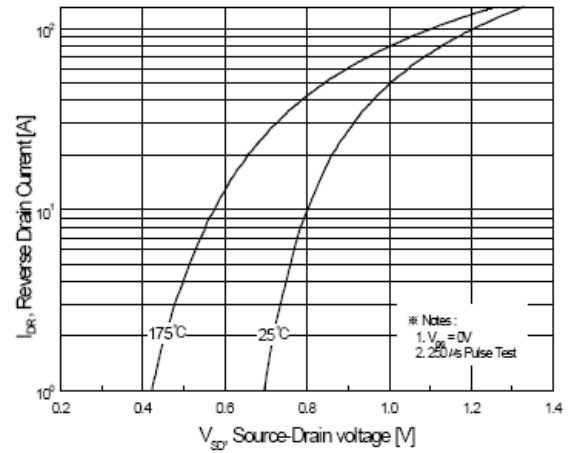


Figure 4. Body Diode Forward Voltage Variation vs. Source Current and Temperature

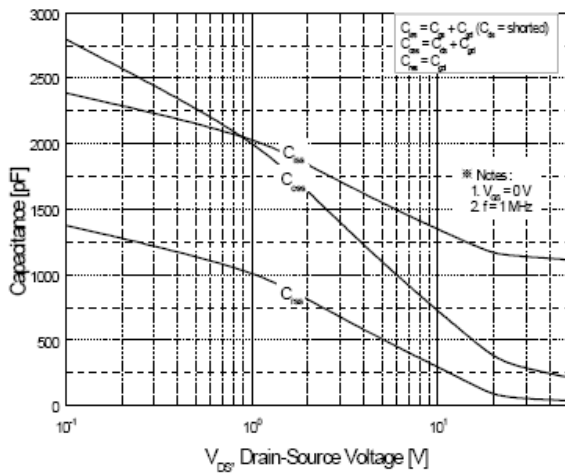


Figure 5. Capacitance Characteristics

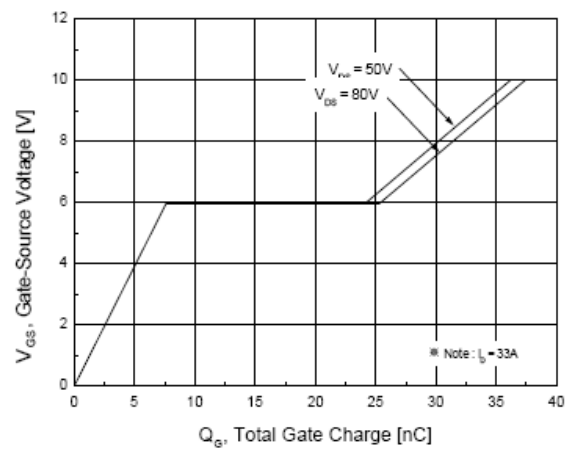


Figure 6. Gate Charge Characteristics



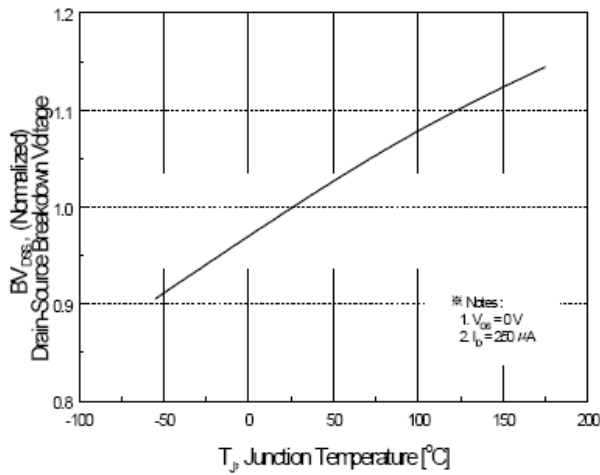


Figure 7. Breakdown Voltage Variation vs. Temperature

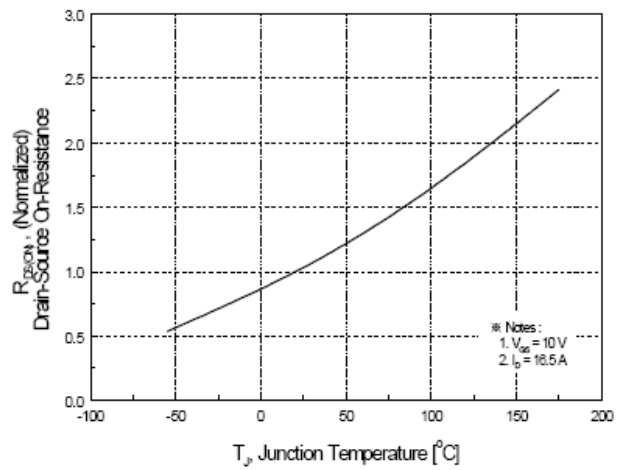


Figure 8. On-Resistance Variation vs. Temperature

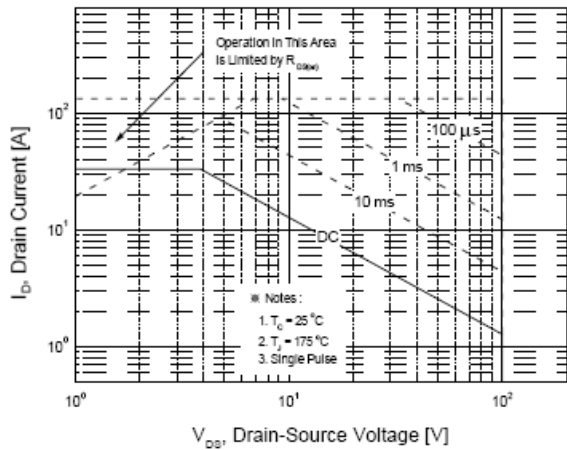


Figure 9. Maximum Safe Operating Area

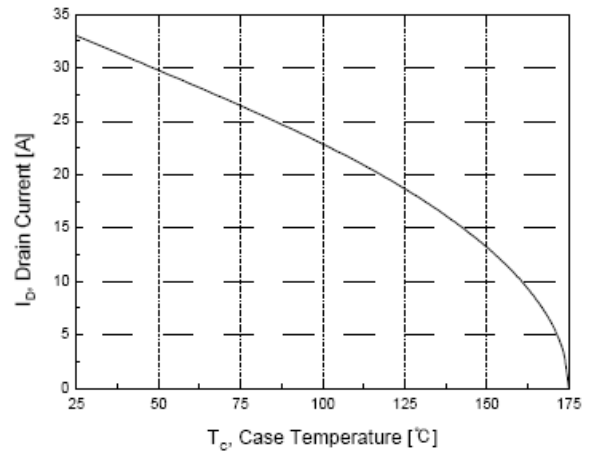


Figure 10. Maximum Drain Current vs. Case Temperature

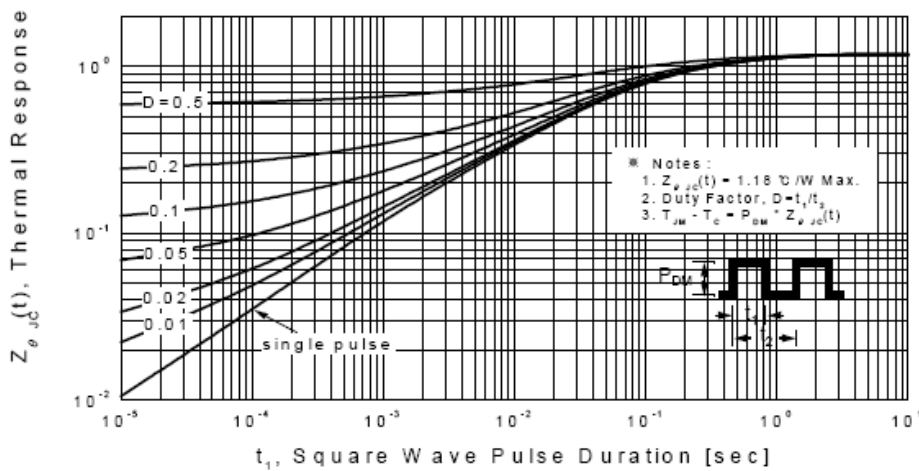


Figure 11. Transient Thermal Response Curve

