

N / P Channel MOSFET

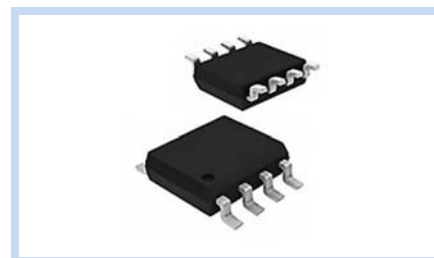
20 / -20V SOT-26 ESD

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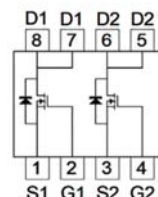
FEATURE

- $R_{DS(ON)} < 47m\Omega$, $V_{GS}=10V$, $I_D=4A$
- $R_{DS(ON)} < 57m\Omega$, $V_{GS}=4.5V$, $I_D=3A$
- Low Gate Charge
- Fast Switching Characteristic
- Low On Resistance



MECHANICAL DATA

- Case: SOP-8 Package
- Terminals: Solderable per MIL-STD-750, Method 2026

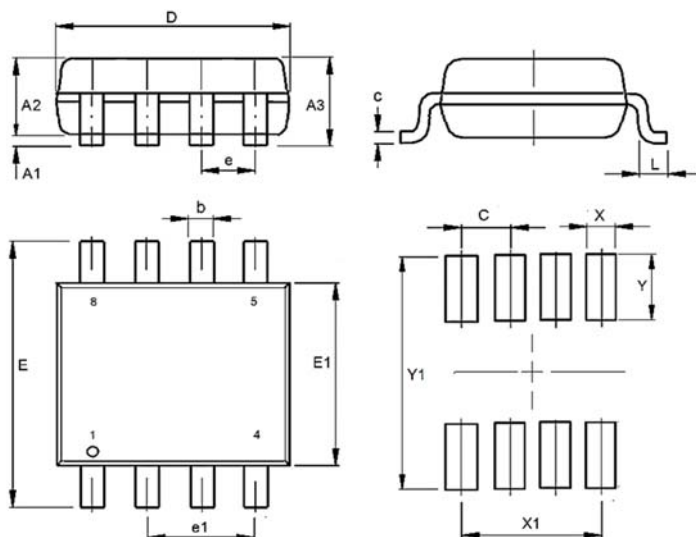


MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current – Continuous	$T_C = 25^\circ C$	I_D	8.8	A
	$T_C = 100^\circ C$		5.5	
Drain Current – Pulsed		I_{DM}	35	A
Diode Forward Current	$T_C = 25^\circ C$	I_S	6	A
	$T_C = 100^\circ C$			
Power Dissipation	$T_C = 25^\circ C$	P_D	7.3	W
	$T_C = 100^\circ C$		2.9	
Drain Current – Continuous	$T_A = 25^\circ C$	I_D	4.3	A
	$T_A = 70^\circ C$		3.4	
Power Dissipation	$T_A = 25^\circ C$	P_D	1.8	W
	$T_A = 70^\circ C$		1.1	
Single Pulse Avalanche Current		I_{AS}	10	A
Single Pulse Avalanche Energy		E_{AS}	9	mJ
Thermal Resistance Junction to Case		$R_{\theta JC}$	17	$^\circ C/W$
Thermal Resistance Junction to Ambient		$R_{\theta JA}$	71	$^\circ C/W$
Operating Junction and Storage Temperature		T_J, T_{STG}	-55 to +150	$^\circ C$

DIMENSIONS

SOP-8	Min (mm)	Max (mm)
A1	0.10	0.25
A2	1.35	1.55
A3	1.35	1.75
b	0.33	0.51
c	0.17	0.25
D	4.70	5.10
E	5.80	6.20
E1	3.80	4.00
e	1.27	
L	0.40	1.27
X	0.6	
X1	3.81	
Y	1.52	
Y1	7.04	
C	1.27	



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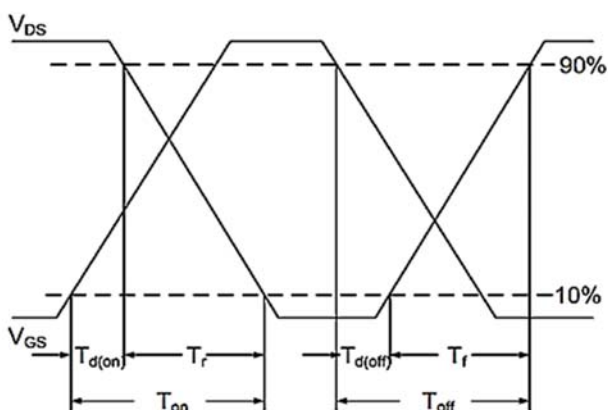
ELECTRICAL CHARACTERISTICS

Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	60	--	--	V
Drain-Source Leakage Current	$V_{DS}=48V, V_{GS}=0V,$	I_{DSS}	--	--	1	μA
Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSS}	--	--	± 100	nA
On Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=4A$	$R_{DS(ON)}$	--	36	47	m Ω
	$V_{GS}=4.5V, I_D=3A$		--	41	57	
Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	$V_{GS(th)}$	1.0	--	2.5	V
Forward Transfer Admittance	$V_{GS}=10V, I_D=4A$	G_{FS}	--	6	--	S
Dynamic Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Total Gate Charge	$V_{DS}=30V, V_{GS}=-10V, I_D=5A$	Q_g	--	18	--	nC
Gate-Source Charge		Q_{gs}	--	2.1	--	
Gate-Drain Charge		Q_{gd}	--	3.8	--	
Turn-On Delay Time	$V_{DS}=30V, V_{GS}=10V, R_G=6\Omega, I_D=2A$	$T_{d(on)}$	--	6.5	--	ns
Rise Time		T_r	--	7.4	--	
Turn-Off Delay Time		$T_{d(off)}$	--	41	--	
Fall Time		T_f	--	6.3	--	
Input Capacitance	$V_{DS}=30V, V_{GS}=0V, F=1MHz$	C_{iss}	--	730	--	pF
Output Capacitance		C_{oss}	--	45	--	
Reverse Transfer Capacitance		C_{rss}	--	37	--	
Gate Resistance	$F=1MHz$	R_g	--	2.8	--	Ω
Drain-Source Body Diode	Conditions	Symbol	Min	Typ.	Max	Unit
Diode Forward Voltage	$V_{GS}=0V, I_S=5A$	V_{SD}	--	0.85	1.2	V
Reverse Recovery Time	$I_F=5A, dI_F/dt=100A/\mu s$	T_{rr}	--	12	--	ns
Reverse Recovery Charge		Q_{rr}	--	7.5	--	nC

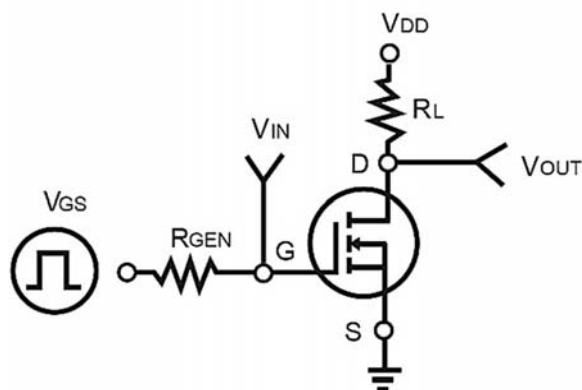
Note:

1. Pulse width $\leq 300\mu s$, duty cycles $\leq 2\%$
2. $T_A = 25^\circ C$, unless otherwise specified.
3. The power dissipation P_D is based on $T_{J(MAX)} = 150^\circ C$, using junction junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heatsinking is used.
4. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² FR-4 board with 2 oz. copper, in a still air environment with $T_A = 25^\circ C$. The power dissipation P_D is based on $R_{\theta JA}$ and the maximum allowed junction temperature of $150^\circ C$. The value in any given application depends on the user's specific board design.
5. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)} = 150^\circ C$. Ratings are based on low frequency and low duty cycles to keep initial $T_J = 25^\circ C$

Switching Time Waveform



Switching Test Circuit



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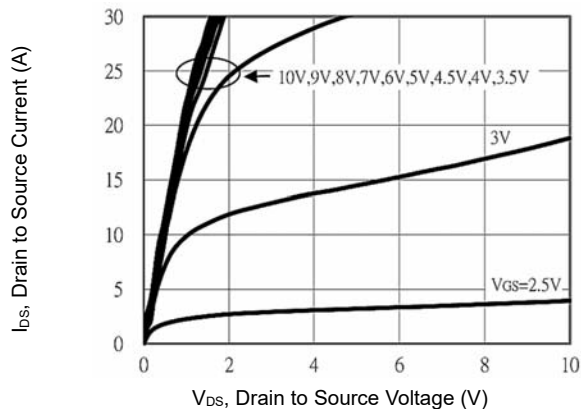
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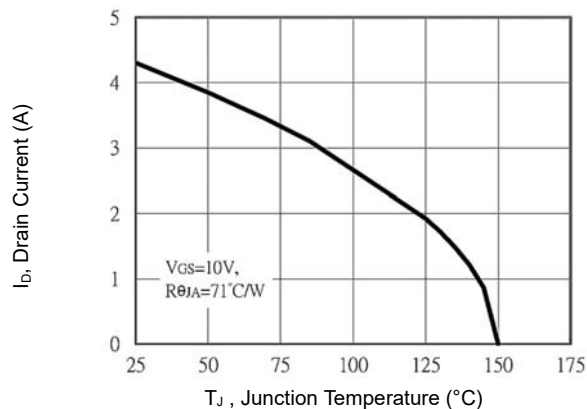
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CHARACTERISTIC CURVES

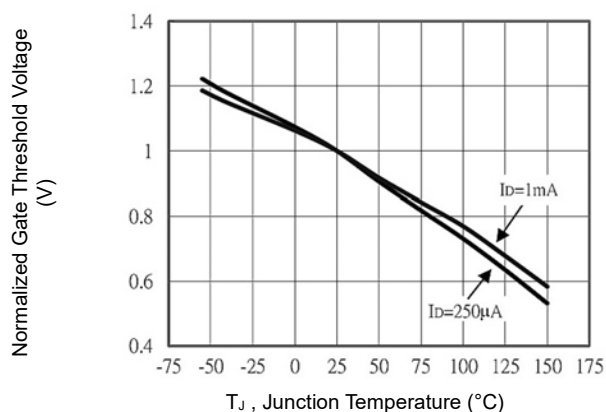
On-Region Characteristics



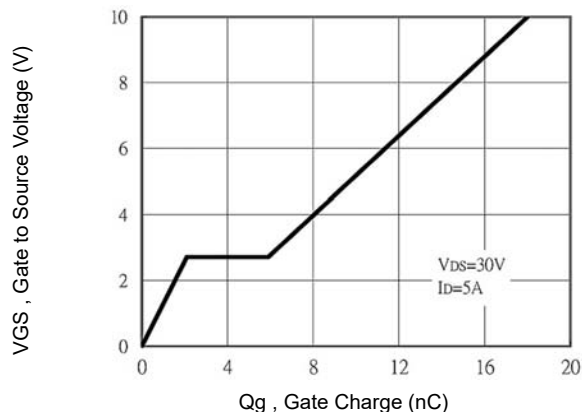
Maximum Drain Current



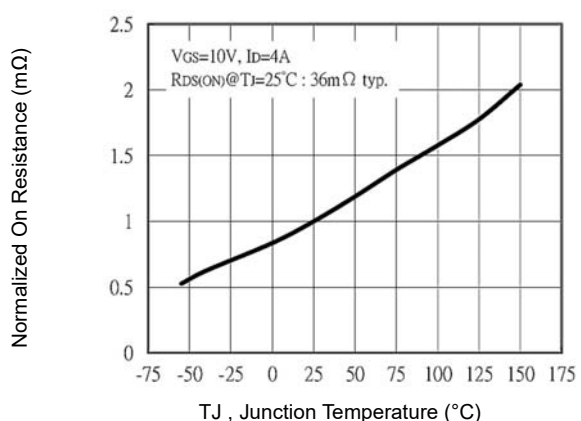
Normalized V_{th} vs. T_J



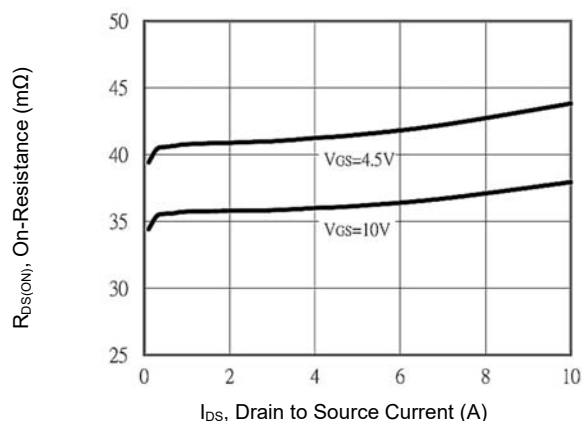
Gate Charge Waveform



Normalized $R_{DS(ON)}$ vs. T_J



On-Resistance vs. Drain Current



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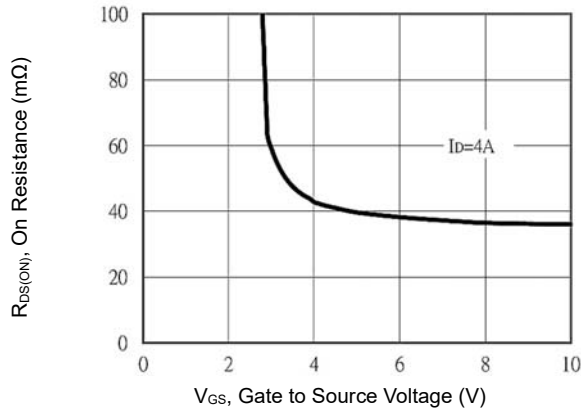
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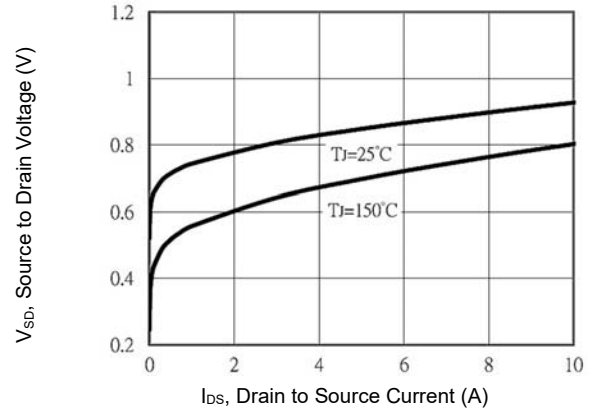
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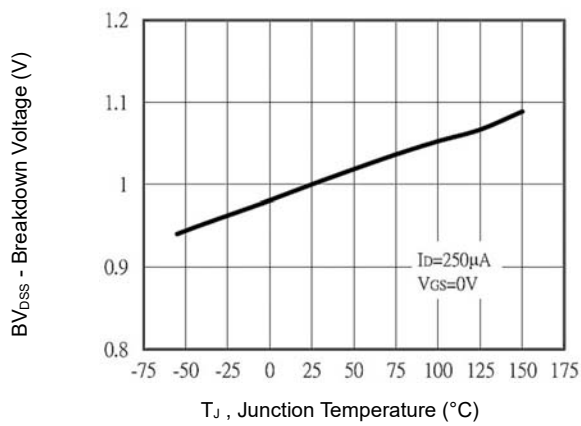
On-Resistance Variation with V_{GS}



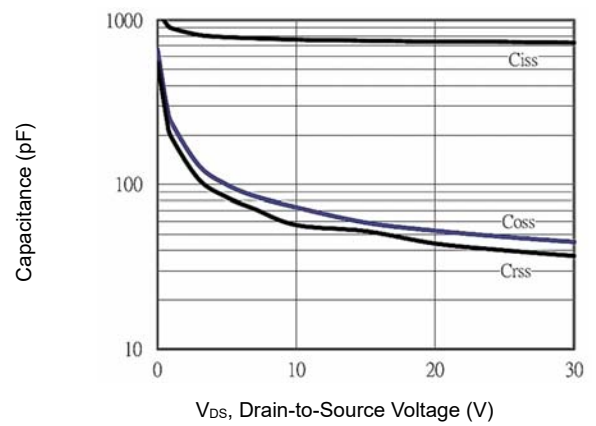
Body Diode



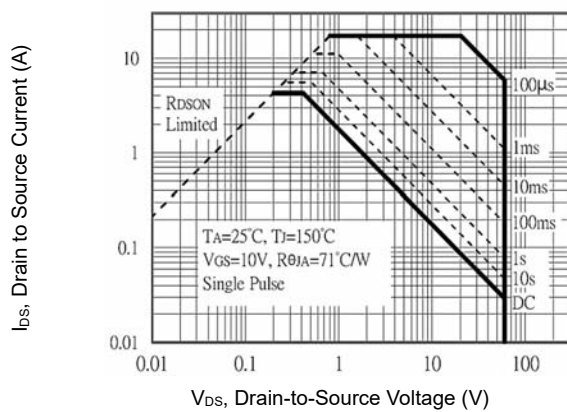
Breakdown Voltage vs Junction Temperature



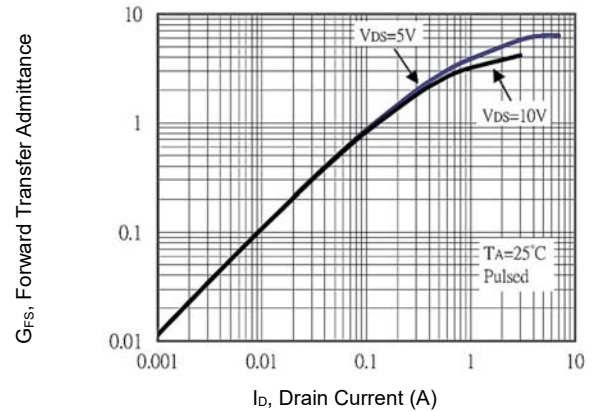
Capacitance vs. Drain-Source Voltage



Maximum Safe Operating Area



Forward Transfer Admittance



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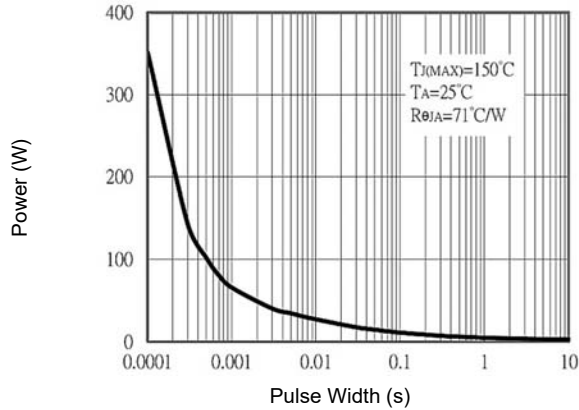
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CHARACTERISTIC CURVES

Single Pulse Power Rating



Normalized Transient Thermal Impedance Curve

