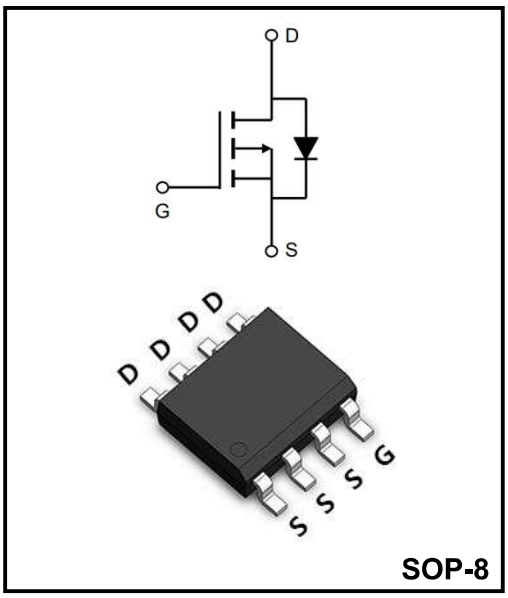
-30V P-Channel Enhancement Mode Power MOSFET

MAIN CHARACTERISTICS

I_D	-5.3A
V_{DSS}	-30V
R_{DSON}-typ(@V_{GS}=-10V)	<55mΩ(Typ:45mΩ)
R_{DSON}-typ(@V_{GS}=-4.5V)	<85mΩ(Typ:65mΩ)



SOP-8

FEATURES

- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

Applications

- PWM applications
- Load switch
- Power management

Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	-30	V
Gate - Source Voltage	V_{GS}	±20	V
Drain Current – Continuous	I_D	-5.3	A
Pulsed Drain Current(Note 1)	I_{DM}	-20	A
Maximum Power Dissipation	P_D	2.5	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	$T_{J,}$	-55 to +150	°C
Thermal Resistance,Junction-to-Ambient (Note 2)	$R_{\theta JA}$	49	°C/W

Electrical Characteristics (T_A=25℃unless otherwise noted)

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250μA	BV_{DSS}	-30	-33	-	V
Drain -Source Leakage Current	V_{DS}=-24V , V_{GS}=0V	I_{DSS}	-	-	-1	μA
Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0V	I_{GSS}	-	-	±100	nA
Static Drain-Source On-Resistance	V_{GS} = -10 V, I_D =4.0A	$R_{DS(ON)}$	-	45	55	mΩ
	V_{GS} =- 4.5 V, I_D =3.0A		-	65	85	mΩ
Forward Transconductance	V_{DS}=-15V , I_D=-4.5A	gfs	4	7	-	S
Input Capacitance	V_{DS}=-15V V_{GS}=0V F=1.0MHz	C_{iss}	-	1040	-	pF
Output Capacitance		C_{oss}	-	420	-	
Reverse Transfer Capacitance		C_{rss}	-	150	-	
Turn-on Delay Time	V_{DD}=-15V I_D=-1A V_{GS}=-10V R_{GEN}=6Ω	$t_{d(on)}$	-	15	-	ns
Turn-on Rise Time		T_r	-	13	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	58	-	
Turn-Off Fall Time		t_f	-	21	-	
Total Gate Charge	V_{DS}=-15V, I_D=-5.3A V_{GS}=-10V	Q_G		12	-	nC
Gate to Source Charge		Q_{GS}		2.2	-	
Gate to Drain Charge		Q_{GD}		3	-	
Diode Forward Voltage (Note 3)	V_{GS}=0V,Is=-1.7A	V_{SD}	-	-	-1.2	V

Notes:
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

Typical Electrical and Thermal Characteristics

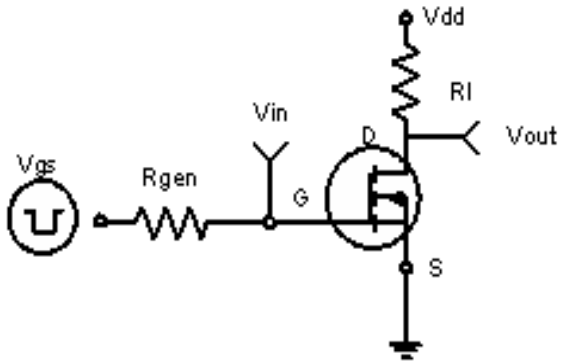


Figure 1:Switching Test Circuit

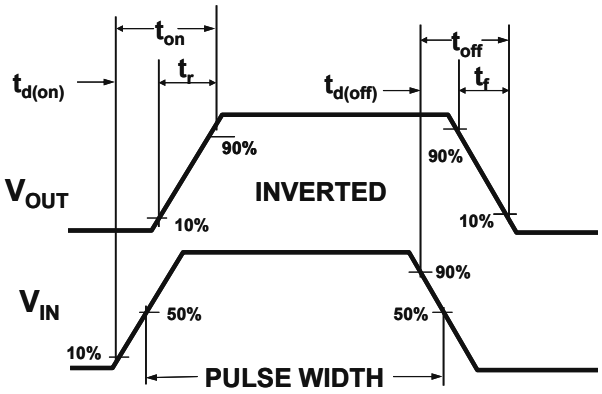


Figure 2:Switching Waveforms

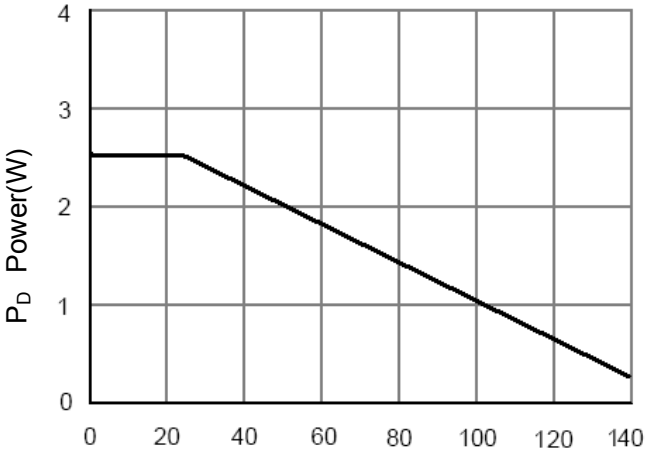


Figure 3 Power Dissipation

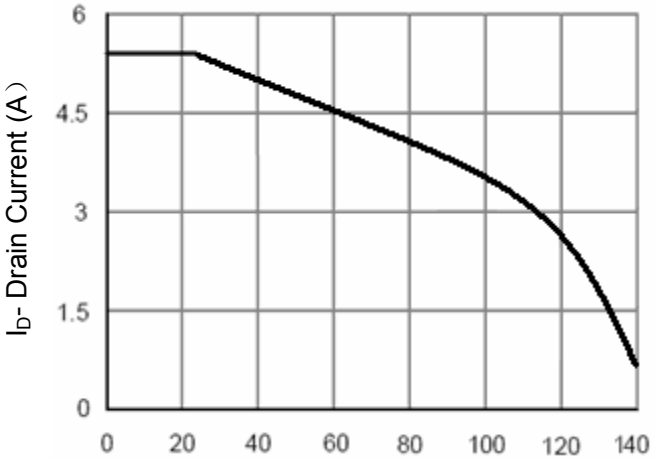


Figure 4 Drain Current

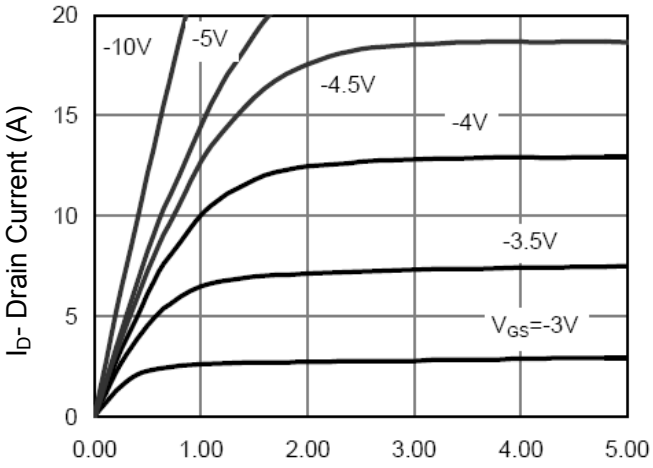


Figure 5 Output Characteristics

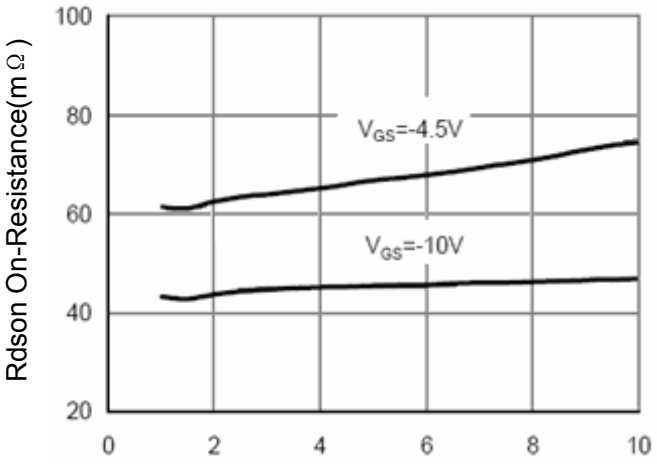


Figure 6 Drain-Source On-Resistance

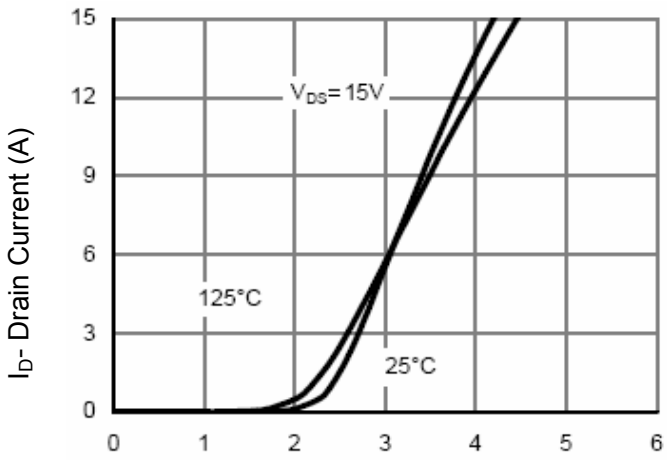


Figure 7 Transfer Characteristics

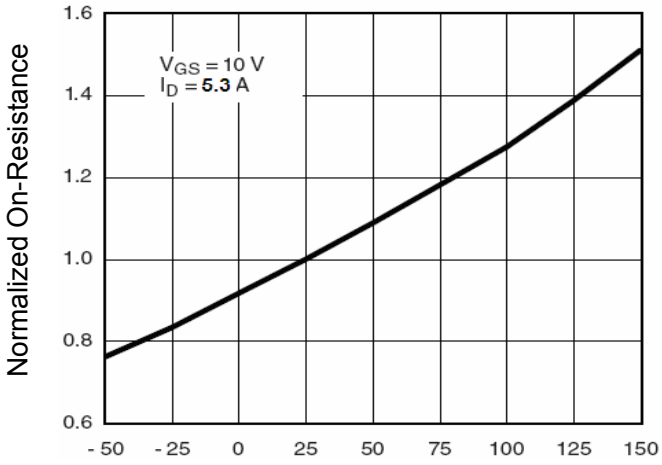


Figure 8 Drain-Source On-Resistance

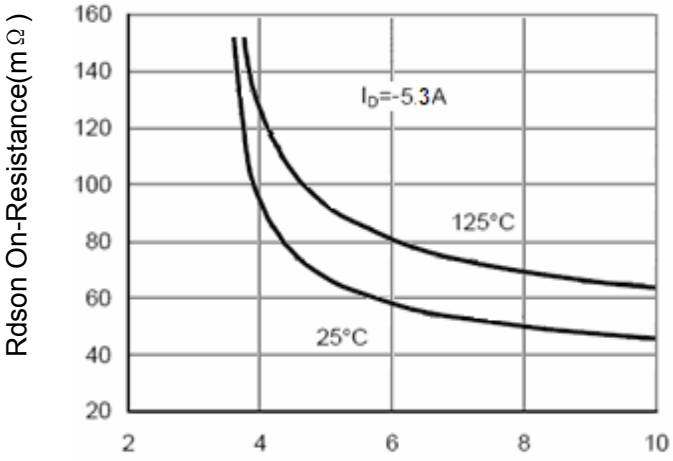


Figure 9 Rdson vs Vgs

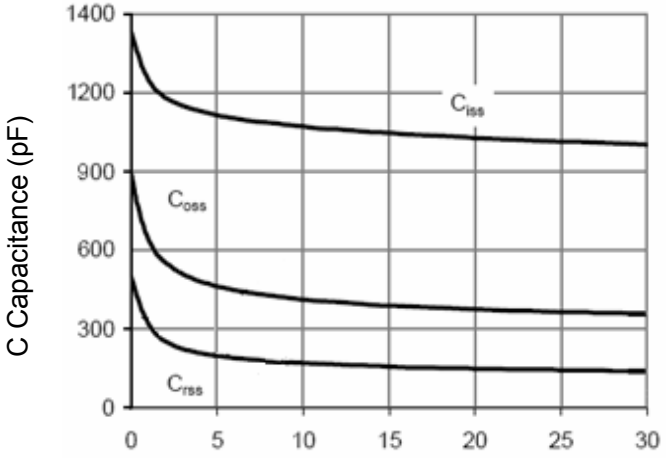


Figure 10 Capacitance vs Vds

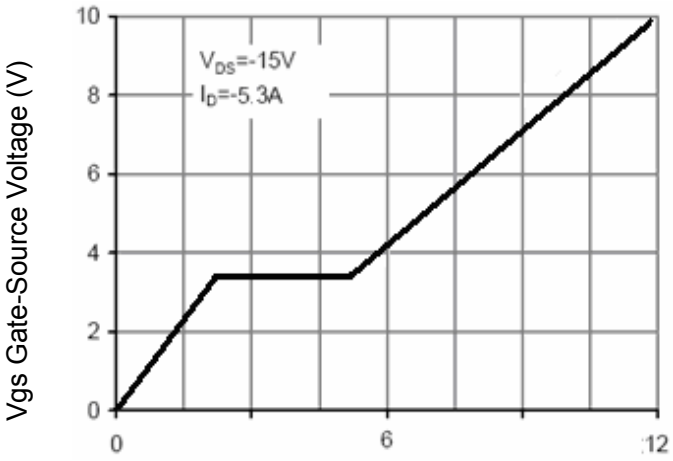


Figure 11 Gate Charge

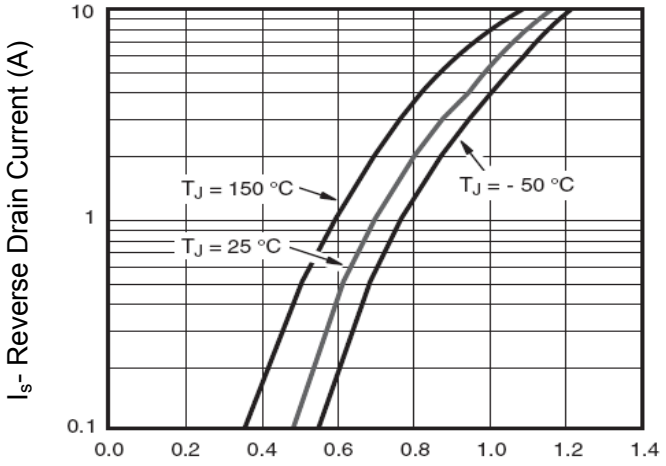


Figure 12 Source- Drain Diode Forward

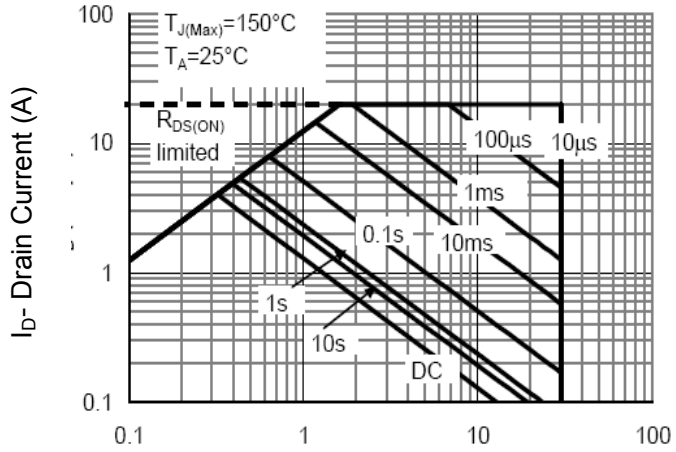


Figure 13 Safe Operation Area

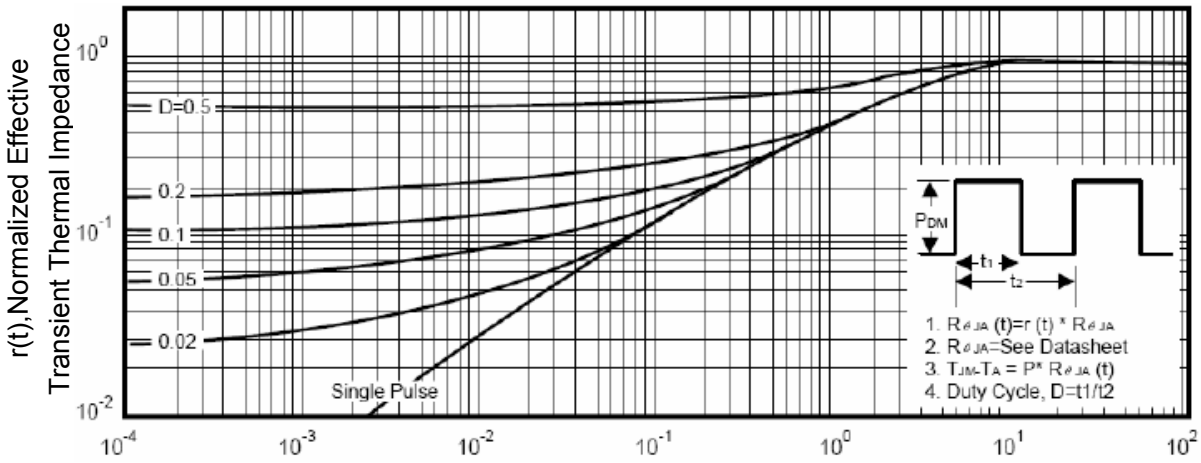
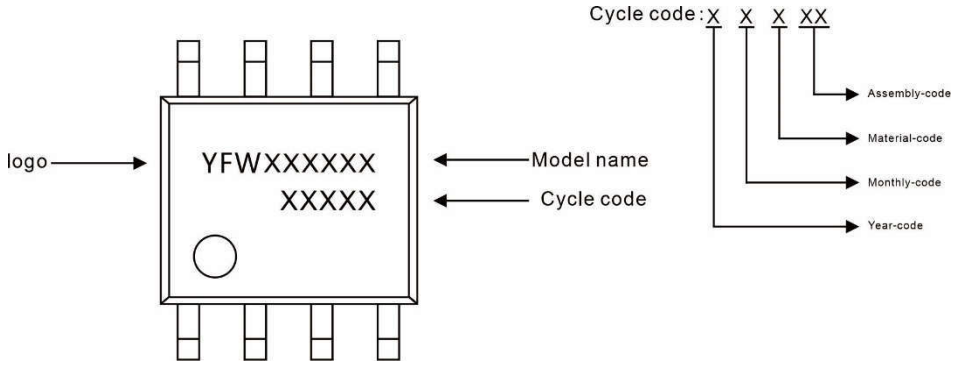


Figure 14 Normalized Maximum Transient Thermal Impedance

Marking Diagram

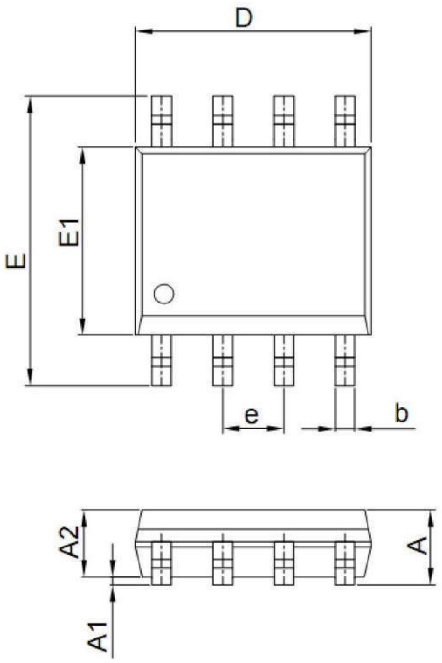


Ordering information

Package	Packing Description	Packing Quantity
SOP-8	Tape/Reel,13"reel	3000PCS/Reel 30000PCS/Carton

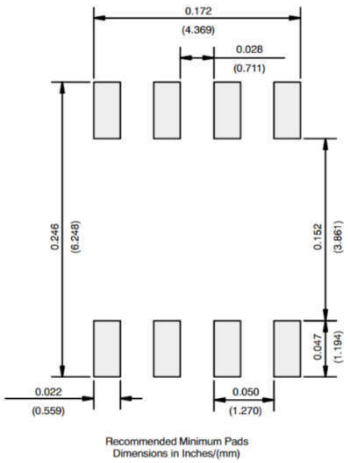
Package Dimensions

SOP-8



Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	1.35	1.75	0.053	0.069
A1	0.10	0.25	0.004	0.010
A2	1.35	1.50	0.053	0.059
b	0.35	0.55	0.014	0.022
c	0.15	0.25	0.006	0.010
D	4.80	5.00	0.189	0.197
D1	3.10	3.50	0.122	0.138
E	5.80	6.20	0.228	0.244
E1	3.80	4.00	0.150	0.157
E2	2.20	2.60	0.087	0.102
e	1.27 (BSC)		0.050 (BSC)	
L	0.40	1.27	0.016	0.050
θ	0°	8°	0°	8°

The recommended mounting pad size



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