

EVVOSEMI[®]

THINK CHANGE DO



ESD



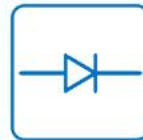
TVS



MOS



LDO



Diode



Sensor



DC-DC

Product Specification

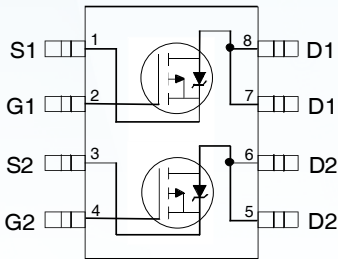
▶ Domestic	Part Number	IRF7342
▶ Overseas	Part Number	IRF7342
▶ Equivalent	Part Number	IRF7342

EV is the abbreviation of name EVVO

Dual P-Channel MOSFET

Features

- $V_{DS}(V)=-55V$
- $R_{DS(ON)} < 105m\Omega$ ($V_{GS} = -10V$)
- $R_{DS(ON)} < 170m\Omega$ ($V_{GS} = -4.5V$)
- Generation V Technology
- Ultra Low On-Resistance
- Surface Mount
- Dynamic dv/dt Rating
- Fast Switching
- Lead-Free



Top View

Description

The SOP-8 has been modified through a customized leadframe for enhanced thermal characteristics and multiple-die capability making it ideal in a variety of power applications. With these improvements, multiple devices can be used in an application with dramatically reduced board space. The package is designed for vapor phase, infra red, or wave soldering techniques. Power dissipation of greater than 0.8W is possible in a typical PCB mount application.

Absolute Maximum Ratings

	Parameter	Max.	Units
V_{DS}	Drain- Source Voltage	-55	V
$I_D @ T_C = 25^{\circ}C$	Continuous Drain Current, $V_{GS} @ 10V$	-3.4	A
$I_D @ T_C = 70^{\circ}C$	Continuous Drain Current, $V_{GS} @ 10V$	-2.7	
I_{DM}	Pulsed Drain Current ①	-27	
$P_D @ T_C = 25^{\circ}C$	Power Dissipation	2.0	W
$P_D @ T_C = 70^{\circ}C$	Power Dissipation	1.3	
	Linear Derating Factor	0.016	W/°C
V_{GS}	Gate-to-Source Voltage	± 20	V
V_{GSM}	Gate-to-Source Voltage Single Pulse $t_p < 10\mu s$	30	V
E_{AS}	Single Pulse Avalanche Energy②	114	
dv/dt	Peak Diode Recovery dv/dt ③	5.0	V/ns
T_J, T_{STG}	Junction and Storage Temperature Range	-55 to + 150	°C

Thermal Resistance

	Parameter	Typ.	Max.	Units
$R_{\theta JA}$	Maximum Junction-to-Ambient⑤		62.5	°C/W

Dual P-Channel MOSFET

Electrical Characteristics @ $T_J = 25^\circ\text{C}$ (unless otherwise specified)

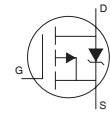
	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	-55			V	$V_{GS} = 0V, I_D = -250\mu A$
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient		-0.054		V/ $^\circ\text{C}$	Reference to 25°C , $I_D = -1\text{mA}$
$R_{DS(on)}$	Static Drain-to-Source On-Resistance		95 150	105 170	$m\Omega$	$V_{GS} = -10V, I_D = -3.4A$ ④ $V_{GS} = -4.5V, I_D = -2.7A$ ④
$V_{GS(th)}$	Gate Threshold Voltage	-1.0			V	$V_{DS} = V_{GS}, I_D = -250\mu A$
g_{fs}	Forward Transconductance	3.3			S	$V_{DS} = -10V, I_D = -3.1A$
I_{DSS}	Drain-to-Source Leakage Current			-2.0 -25	μA	$V_{DS} = -55V, V_{GS} = 0V$ $V_{DS} = -55V, V_{GS} = 0V, T_J = 55^\circ\text{C}$
I_{GSS}	Gate-to-Source Forward Leakage Gate-to-Source Reverse Leakage			-100 100	nA	$V_{GS} = -20V$ $V_{GS} = 20V$
Q_g	Total Gate Charge		26	38		$I_D = -3.1A$
Q_{gs}	Gate-to-Source Charge		3.0	4.5	nC	$V_{DS} = -44V$
Q_{gd}	Gate-to-Drain ("Miller") Charge		8.4	13		$V_{GS} = -10V$, See Fig. 10 ④
$t_{d(on)}$	Turn-On Delay Time		14	22		$V_{DD} = -28V$
t_r	Rise Time		10	15	ns	$I_D = -1.0A$
$t_{d(off)}$	Turn-Off Delay Time		43	64		$R_G = 6.0\Omega$
t_f	Fall Time		22	32		$R_D = 16\Omega$, ④
C_{iss}	Input Capacitance		690			$V_{GS} = 0V$
C_{oss}	Output Capacitance		210		pF	$V_{DS} = -25V$
C_{rss}	Reverse Transfer Capacitance		86			$f = 1.0\text{MHz}$, See Fig. 9

Source-Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)			-2.0	A	MOSFET symbol showing the integral reverse p-n junction diode.
I_{SM}	Pulsed Source Current (Body Diode) ①			-27		
V_{SD}	Diode Forward Voltage			-1.2	V	$T_J = 25^\circ\text{C}, I_S = -2.0A, V_{GS} = 0V$ ③
t_{rr}	Reverse Recovery Time		54	80	ns	$T_J = 25^\circ\text{C}, I_F = -2.0A$
Q_{rr}	Reverse Recovery Charge		85	130	nC	$di/dt = -100A/\mu s$ ③

Notes:

- ① Repetitive rating; pulse width limited by max. junction temperature. (See fig. 11)
- ② Starting $T_J = 25^\circ\text{C}$, $L = 20\text{mH}$
 $R_G = 25\Omega$, $I_{AS} = -3.4A$. (See Figure 8)
- ③ $I_{SD} \leq -3.4A$, $di/dt \leq -150A/\mu s$, $V_{DD} \leq V_{(BR)DSS}$,
 $T_J \leq 150^\circ\text{C}$
- ④ Pulse width $\leq 300\mu s$; duty cycle $\leq 2\%$.
- ⑤ When mounted on 1 inch square copper board, $t < 10\text{ sec}$



Dual P-Channel MOSFET

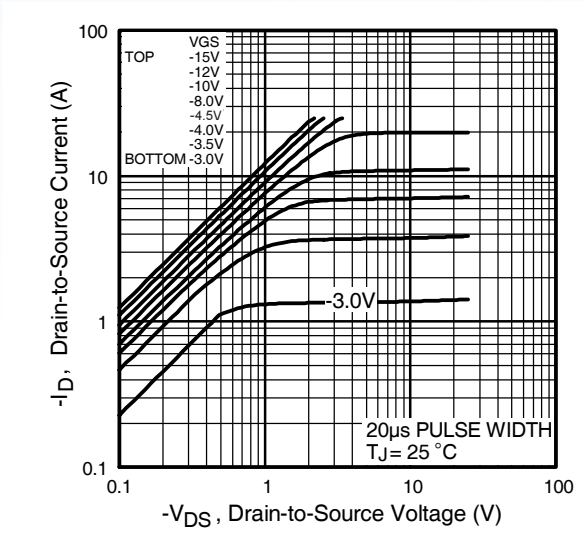


Fig 1. Typical Output Characteristics

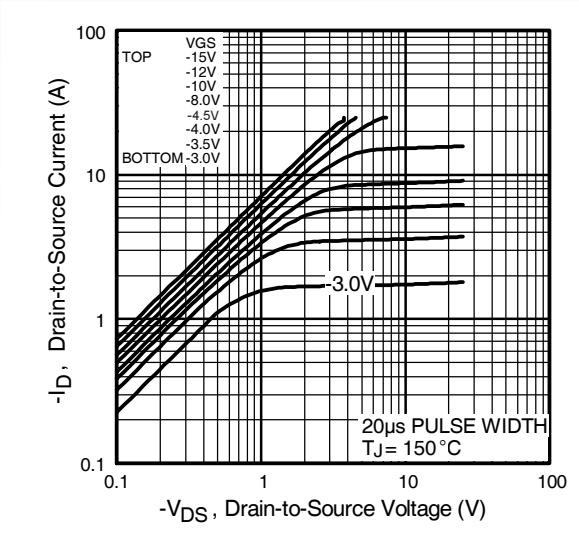


Fig 2. Typical Output Characteristics

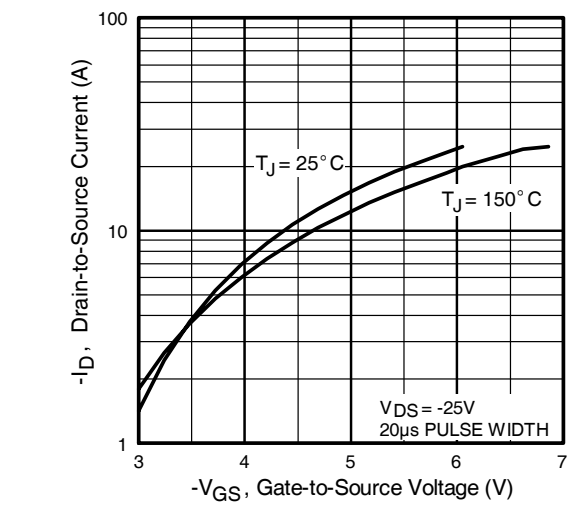


Fig 3. Typical Transfer Characteristics

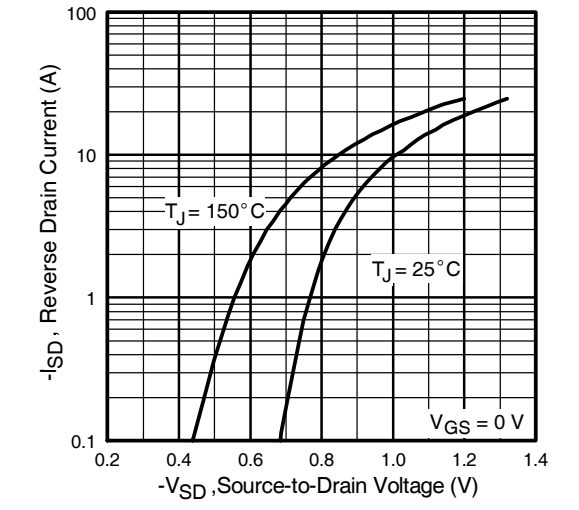


Fig 4. Typical Source-Drain Diode Forward Voltage

Dual P-Channel MOSFET

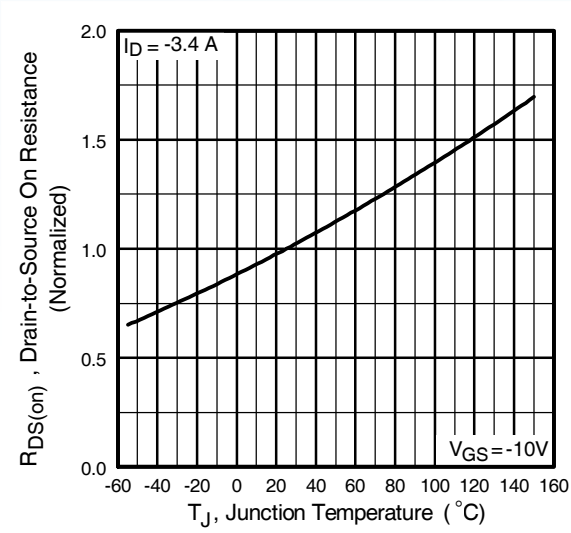


Fig 5. Normalized On-Resistance Vs. Temperature

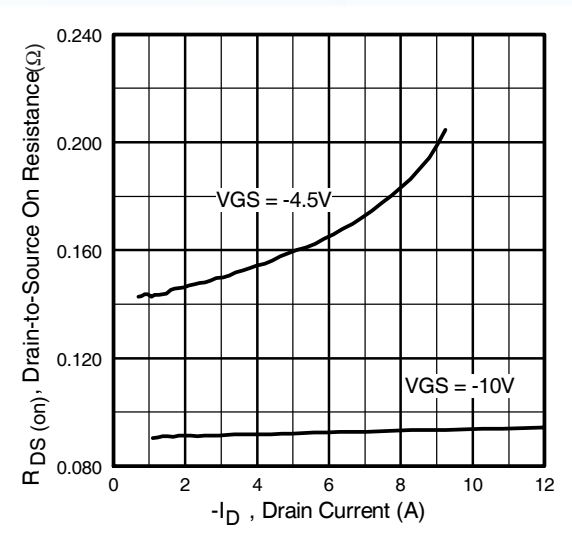


Fig 6. Typical On-Resistance Vs. Drain Current

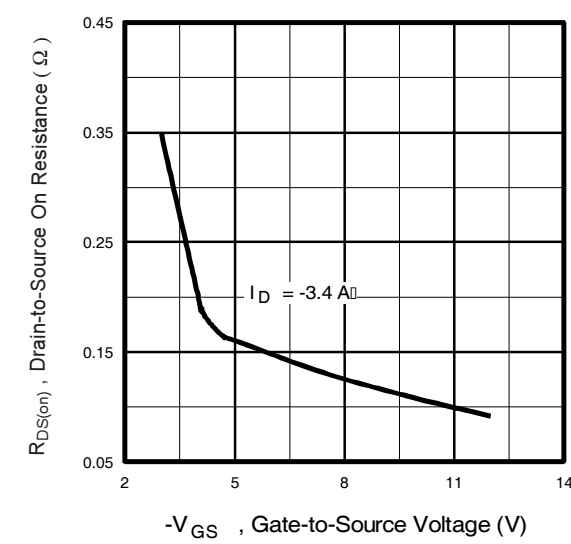


Fig 7. Typical On-Resistance Vs. Gate Voltage

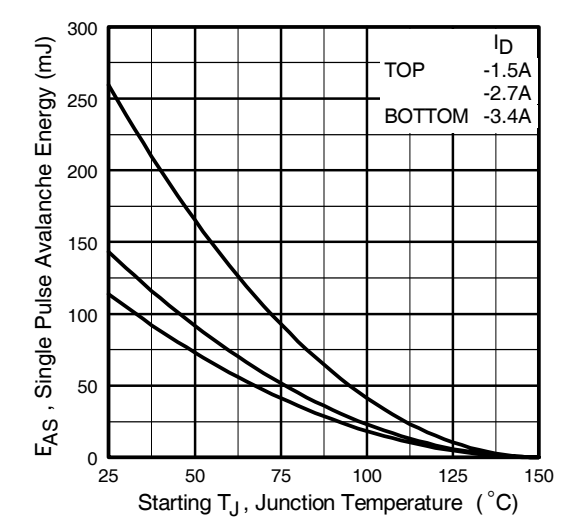


Fig 8. Maximum Avalanche Energy Vs. Drain Current

Dual P-Channel MOSFET

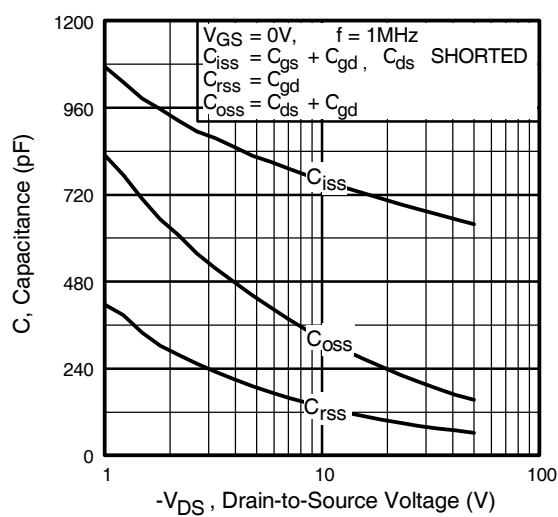


Fig 9. Typical Capacitance Vs. Drain-to-Source Voltage

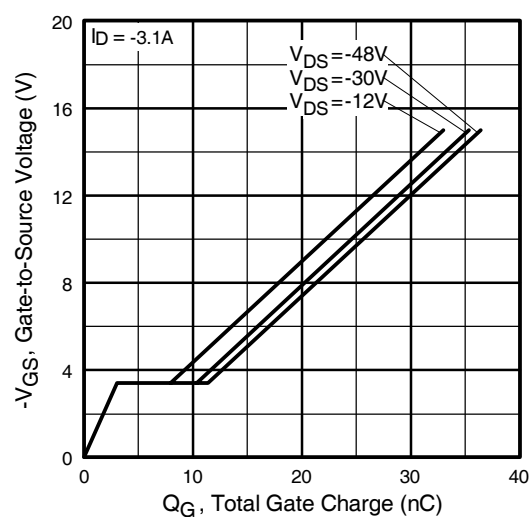


Fig 10. Typical Gate Charge Vs. Gate-to-Source Voltage

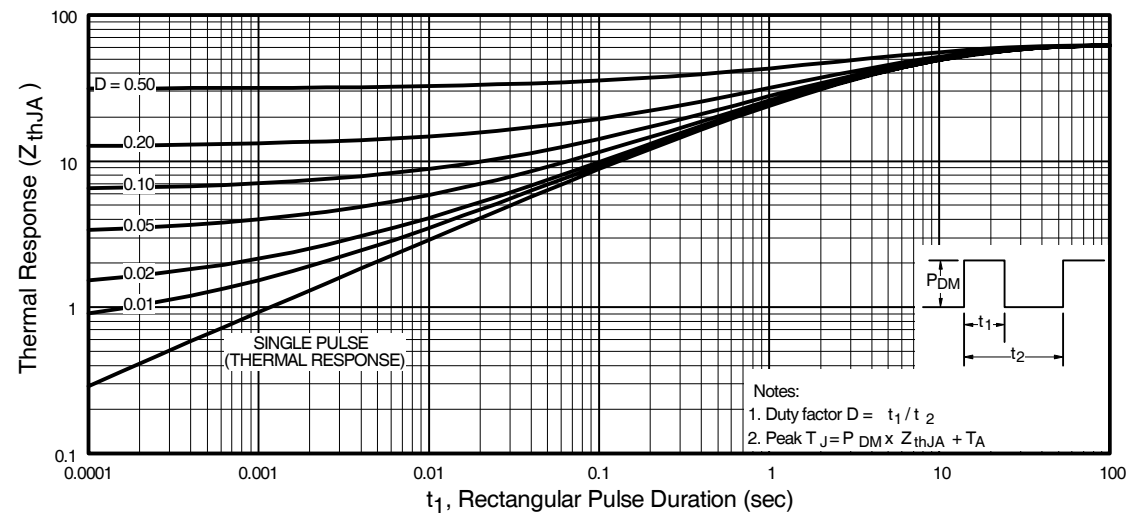
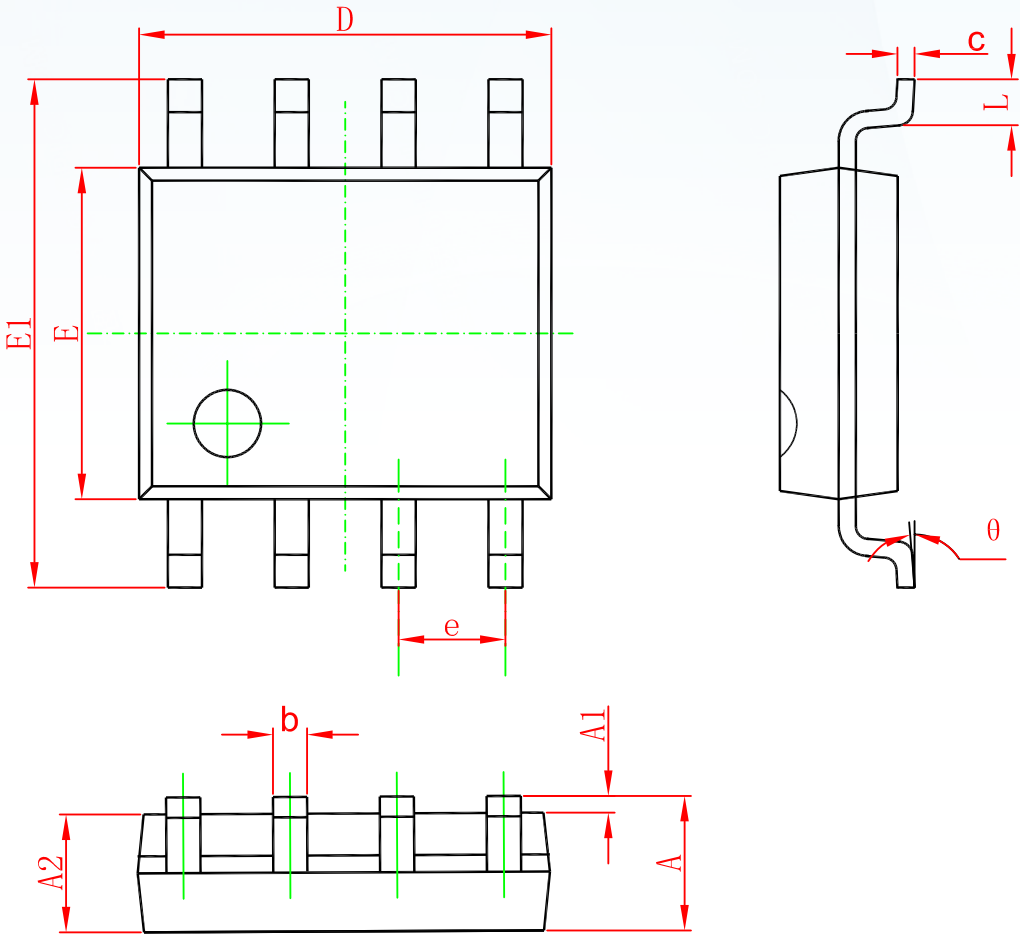


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

Dual P-Channel MOSFET

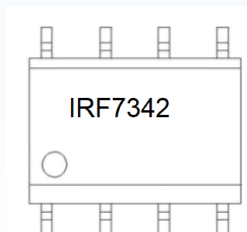
SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

Marking

Dual P-Channel MOSFET



Ordering information

Order code	Package	Baseqty	Deliverymode
IRF7342	SOP-8	3000	Tape and reel

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