

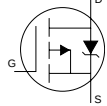
IRF7425

International
IR Rectifier

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	-20	—	—	V	$V_{GS} = 0V$, $I_D = -250\mu A$
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	—	0.010	—	V/ $^\circ\text{C}$	Reference to 25°C , $I_D = -1mA$
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	—	—	8.2	$m\Omega$	$V_{GS} = -4.5V$, $I_D = -15A$ ②
		—	—	13		$V_{GS} = -2.5V$, $I_D = -13A$ ②
$V_{GS(th)}$	Gate Threshold Voltage	-0.45	—	-1.2	V	$V_{DS} = V_{GS}$, $I_D = -250\mu A$
g_{fs}	Forward Transconductance	44	—	—	S	$V_{DS} = -10V$, $I_D = -15A$
I_{DSS}	Drain-to-Source Leakage Current	—	—	-1.0	μA	$V_{DS} = -16V$, $V_{GS} = 0V$
		—	—	-25		$V_{DS} = -16V$, $V_{GS} = 0V$, $T_J = 70^\circ\text{C}$
I_{GSS}	Gate-to-Source Forward Leakage	—	—	-100	nA	$V_{GS} = -12V$
	Gate-to-Source Reverse Leakage	—	—	100		$V_{GS} = 12V$
Q_g	Total Gate Charge	—	87	130	nC	$I_D = -15A$
Q_{gs}	Gate-to-Source Charge	—	18	27		$V_{DS} = -10V$
Q_{gd}	Gate-to-Drain ("Miller") Charge	—	21	32		$V_{GS} = -4.5V$
$t_{d(on)}$	Turn-On Delay Time	—	13	—	ns	$V_{DD} = -10V$ ②
t_r	Rise Time	—	20	—		$I_D = -1.0A$
$t_{d(off)}$	Turn-Off Delay Time	—	230	—		$R_G = 6.0\Omega$
t_f	Fall Time	—	160	—		$V_{GS} = -4.5V$
C_{iss}	Input Capacitance	—	7980	—	pF	$V_{GS} = 0V$
C_{oss}	Output Capacitance	—	1480	—		$V_{DS} = -15V$
C_{rss}	Reverse Transfer Capacitance	—	980	—		$f = 1.0kHz$

Source-Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	-2.5	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode) ①	—	—	-60		
V_{SD}	Diode Forward Voltage	—	—	-1.2	V	$T_J = 25^\circ\text{C}$, $I_S = -2.5A$, $V_{GS} = 0V$ ②
t_{rr}	Reverse Recovery Time	—	120	180	ns	$T_J = 25^\circ\text{C}$, $I_F = -2.5A$
Q_{rr}	Reverse Recovery Charge	—	160	240	nC	$di/dt = -100A/\mu s$ ②

Notes:

① Repetitive rating; pulse width limited by max. junction temperature.

② Pulse width $\leq 400\mu s$; duty cycle $\leq 2\%$.

③ Surface mounted on 1 in square Cu board, $t \leq 10sec$.

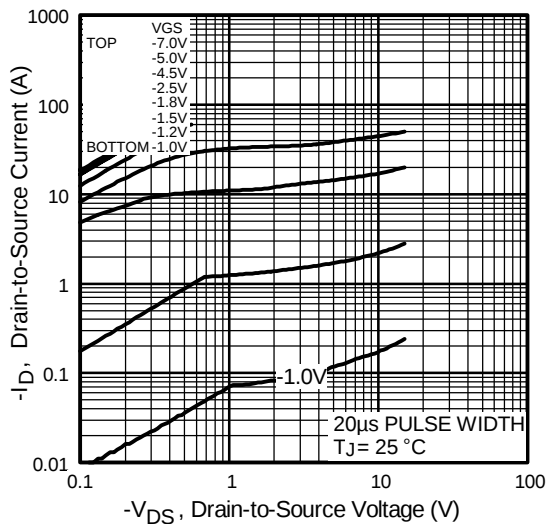


Fig 1. Typical Output Characteristics

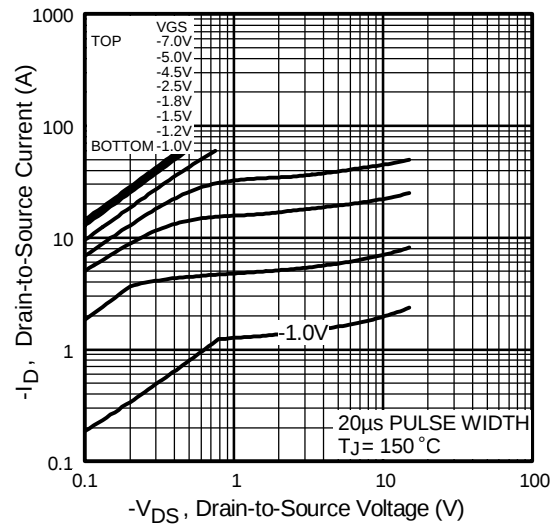


Fig 2. Typical Output Characteristics

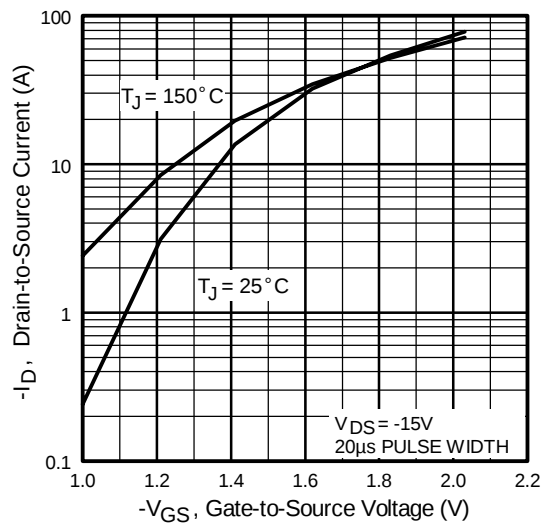


Fig 3. Typical Transfer Characteristics

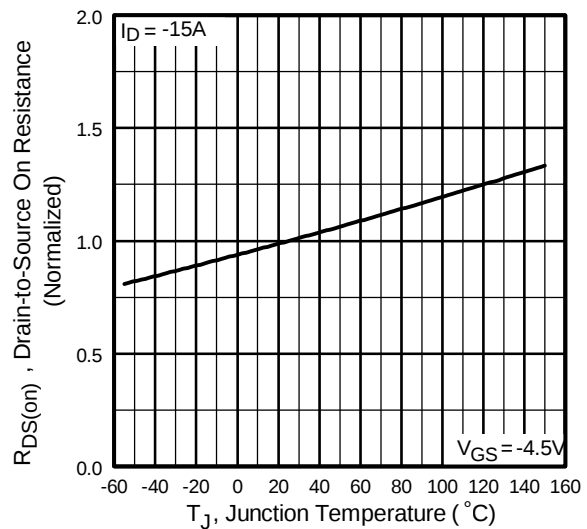
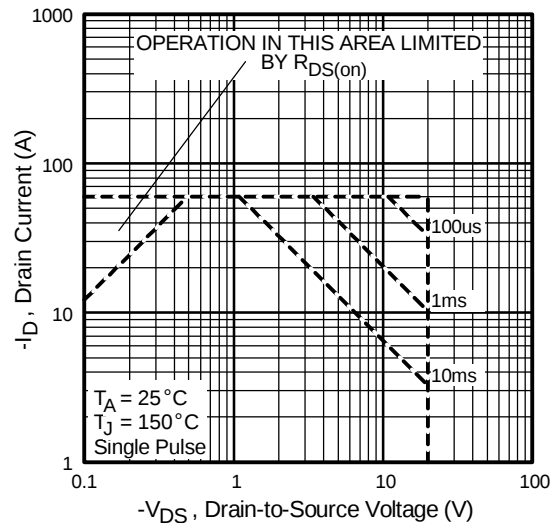
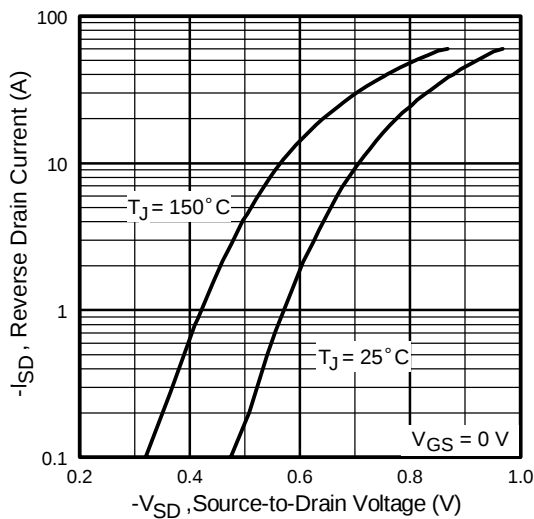
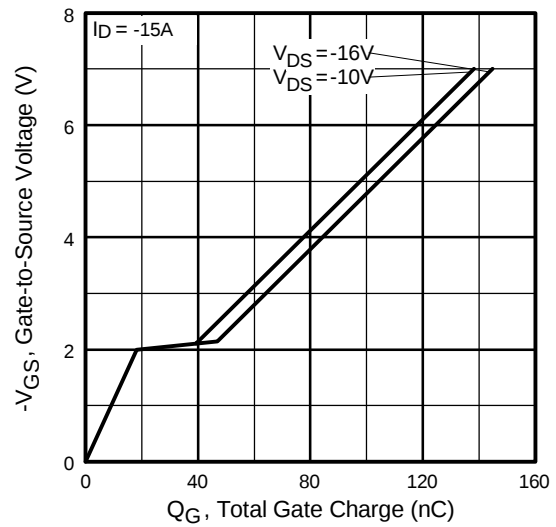
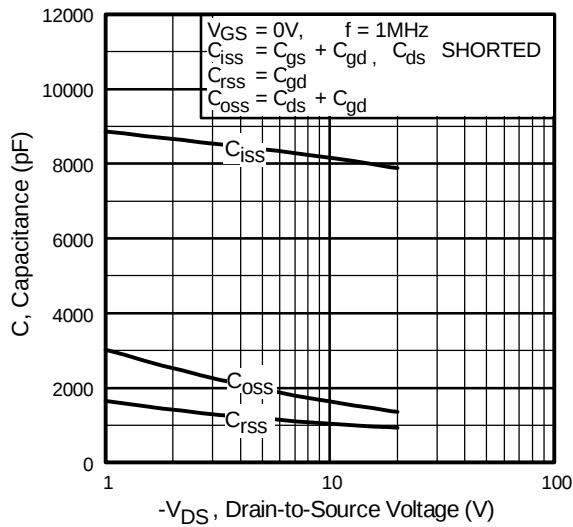


Fig 4. Normalized On-Resistance
Vs. Temperature



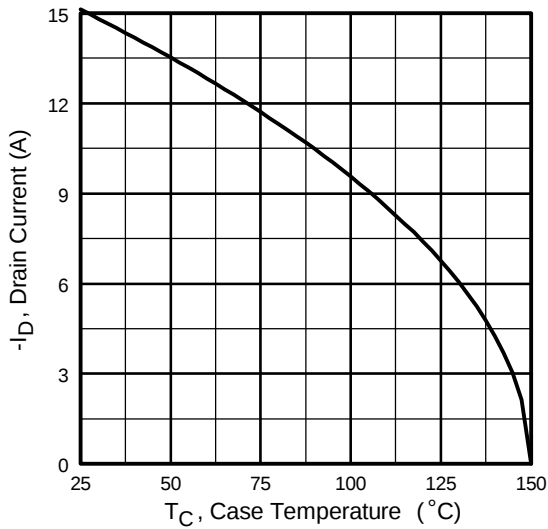


Fig 9. Maximum Drain Current Vs. Case Temperature

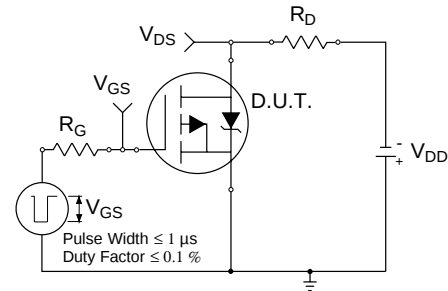


Fig 10a. Switching Time Test Circuit

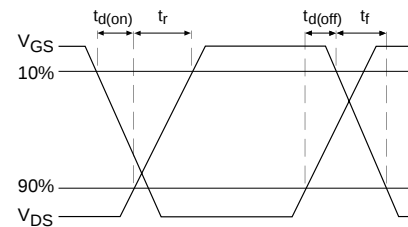


Fig 10b. Switching Time Waveforms

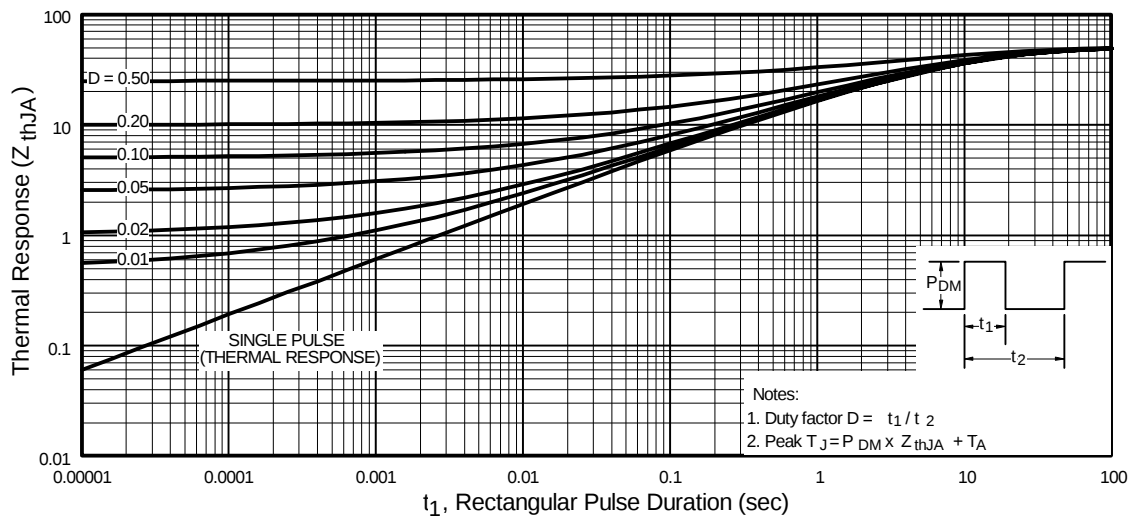


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

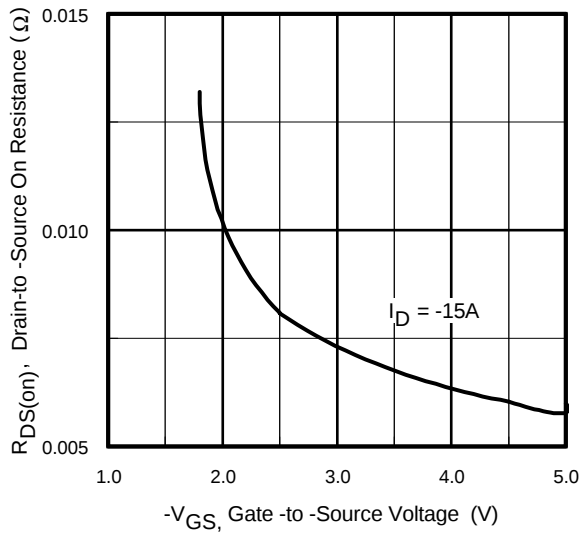


Fig 12. Typical On-Resistance Vs. Gate Voltage

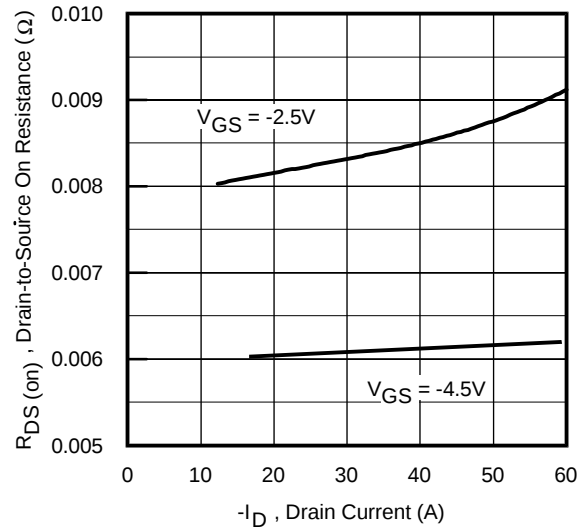


Fig 13. Typical On-Resistance Vs. Drain Current

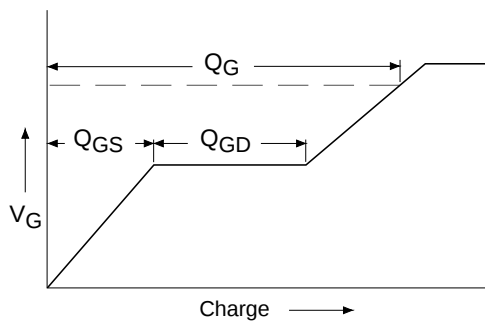


Fig 14a. Basic Gate Charge Waveform

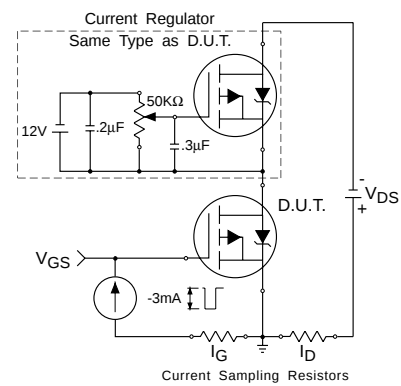


Fig 14b. Gate Charge Test Circuit

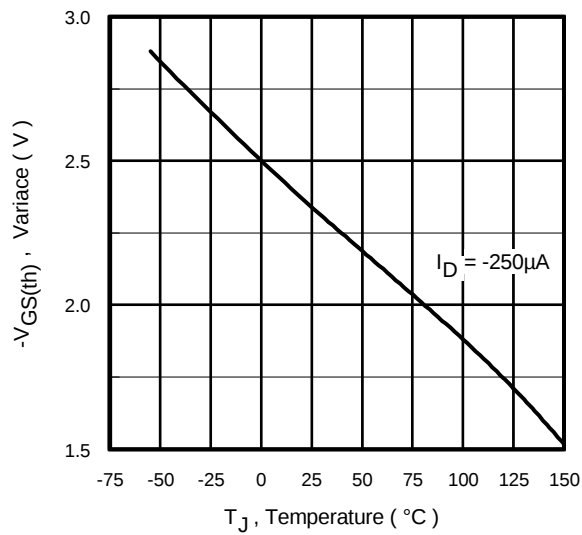


Fig 15. Typical $V_{GS(th)}$ Variance Vs. Juction Temperature

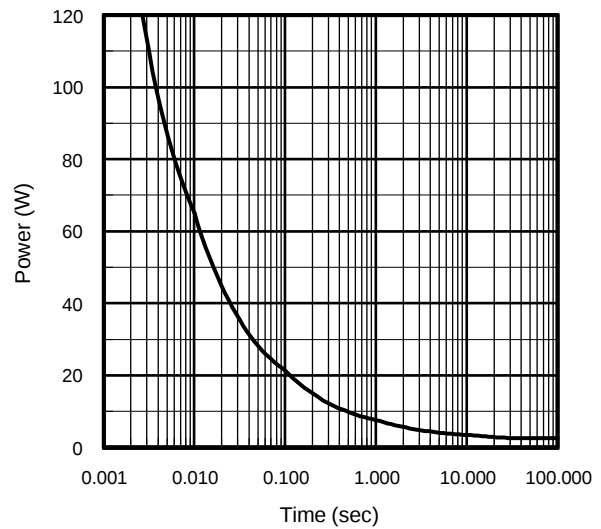


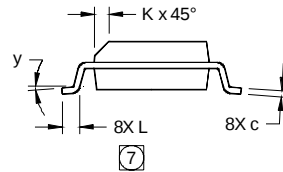
Fig 16. Typical Power Vs. Time

International
IOR Rectifier

[illegible]

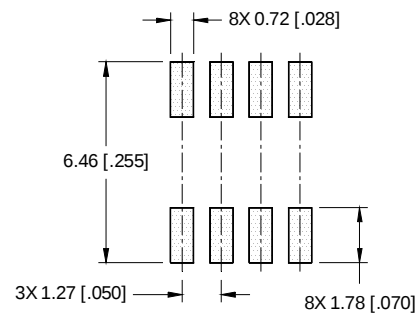
Technical drawing of a mechanical part showing dimensions and a feature control frame. The drawing includes a cross-section of a part with a central hole and a slot. Dimensions are given as $e1$, $8 \times b$, A , and $A1$. A feature control frame is shown with a circular symbol and the value $0.10 [0.004]$. The feature control frame is located at the bottom right of the drawing.

$\oplus$	$0.25 [0.010]$	$\textcircled{M}$	C	A	B
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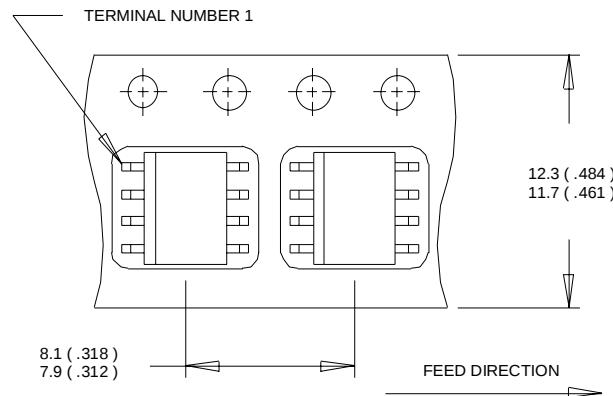


1. DIMENSIONING & TOLERANCING PER ASME Y14.5M-1994.
2. CONTROLLING DIMENSION: MILLIMETER
3. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
4. OUTLINE CONFORMS TO JEDEC OUTLINE MS-012AA.
5. DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.15 [.006].
6. DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.25 [.010].
7. DIMENSION IS THE LENGTH OF LEAD FOR SOLDERING TO A SUBSTRATE.

FOOTPRINT

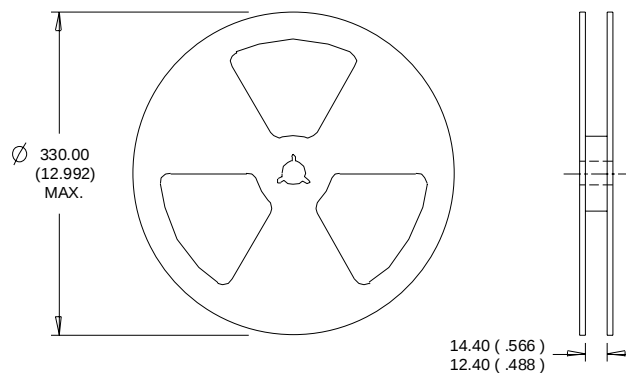


Tape and Reel



NOTES:

1. CONTROLLING DIMENSION : MILLIMETER.
2. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS(INCHES).
3. OUTLINE CONFORMS TO EIA-481 & EIA-541.



NOTES :

1. CONTROLLING DIMENSION : MILLIMETER.
2. OUTLINE CONFORMS TO EIA-481 & EIA-541.

Data and specifications subject to change without notice.
This product has been designed and qualified for the consumer market.
Qualification Standards can be found on IR's Web site.

International
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