Static Electrical Characteristics @ T_J = 25°C (unless otherwise specified)

	Parameter		Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	N-Ch	30	—	—	V	V_{GS} = 0V, I_D = 250µA
		P-Ch	-30	—	—		V_{GS} = 0V, I_D =-250µA
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	N-Ch	—	0.015	—	V/°C	Reference to 25°C, I_D = 1mA
		P-Ch	—	0.015	—		Reference to 25°C, I_D = -1mA
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	N-Ch	—	0.08	0.10	Ω	V_{GS} = 10V, I_D = 2.2A ④
			—	0.12	0.15		V_{GS} = 4.5V, I_D = 1.0A ④
		P-Ch	—	0.165	0.250		V_{GS} = -10V, I_D = -1.0A ④
			—	0.290	0.400		V_{GS} = -4.5V, I_D = -0.5A ④
$V_{GS(th)}$	Gate Threshold Voltage	N-Ch	1.0	—	3.0	V	V_{DS} = V_{GS}, I_D = 250µA
		P-Ch	-1.0	—	-3.0		V_{DS} = V_{GS}, I_D = -250µA
gfs	Forward Transconductance	N-Ch	—	12	—	S	V_{DS} = 15V, I_D = 3.5A
		P-Ch	—	2.4	—		V_{DS} = -15V, I_D = -2.3A
I_{DSS}	Drain-to-Source Leakage Current	N-Ch	—	—	2.0	µA	V_{DS} = 24V, V_{GS} = 0V
		P-Ch	—	—	-2.0		V_{DS} = -24V, V_{GS} = 0V
		N-Ch	—	—	25		V_{DS} = 24V, V_{GS} = 0V, T_J = 125°C
		P-Ch	—	—	-25		V_{DS} = -24V, V_{GS} = 0V, T_J = 125°C
I_{GSS}	Gate-to-Source Forward Leakage	N-P	—	—	-100	nA	V_{GS} = 20V
	Gate-to-Source Reverse Leakage	N-P	—	—	100		V_{GS} = -20V

Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise specified)

	Parameter		Min.	Typ.	Max.	Units	Conditions
Q_g	Total Gate Charge	N-Ch	—	6.9	14	nC	N-Channel
		P-Ch	—	6.1	12		I_D = 1.8A, V_{DS} = 10V, V_{GS} = 10V ④
Q_{gs}	Gate-to-Source Charge	N-Ch	—	1.0	2.0		
		P-Ch	—	1.7	3.4		P-Channel
Q_{gd}	Gate-to-Drain ("Miller") Charge	N-Ch	—	1.8	3.5		I_D =-2.3A, V_{DS} =-10V, V_{GS} =-10V
		N-Ch	—	1.1	2.2		
$t_{d(on)}$	Turn-On Delay Time	P-Ch	—	6.2	12	ns	N-Channel
		N-Ch	—	9.7	19		V_{DD}= 10V, I_D = 1.0A R_G = 6.0Ω
t_r	Rise Time	P-Ch	—	8.8	18		R_D = 10Ω
		N-Ch	—	14	28		
$t_{d(off)}$	Turn-Off Delay Time	N-Ch	—	13	26		P-Channel
		P-Ch	—	20	40		V_{DD}=-10V, I_D =-1.0A R_G = 6.0Ω
t_f	Fall Time	N-Ch	—	3.0	6.0		R_D = 10Ω
		P-Ch	—	6.9	14		
C_{iss}	Input Capacitance	N-Ch	—	190	—	pF	N-Channel
		P-Ch	—	190	—		V_{GS} = 0V, V_{DS} = 15V, f = 1.0MHz ④
C_{oss}	Output Capacitance	N-Ch	—	120	—		
		P-Ch	—	110	—		P-Channel
C_{rss}	Reverse Transfer Capacitance	N-Ch	—	61	—		V_{GS} = 0V, V_{DS} = -15V, f = 1.0MHz
		P-Ch	—	54	—		

Diode Characteristics

	Parameter		Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	N-Ch	—	—	1.7	A	
		P-Ch	—	—	-1.3		
I_{SM}	Pulsed Source Current (Body Diode) ①	N-Ch	—	—	16		
		P-Ch	—	—	16		
V_{SD}	Diode Forward Voltage	N-Ch	—	0.82	1.2	V	T_J = 25°C, I_S = 1.25A, V_{GS} = 0V ③
		P-Ch	—	-0.82	-1.2		T_J = 25°C, I_S = -1.25A, V_{GS} = 0V ③
t_{rr}	Reverse Recovery Time	N-Ch	—	27	53	ns	N-Channel
		P-Ch	—	27	54		T_J = 25°C,I_F =1.25A, di/dt = 100A/µs
Q_{rr}	Reverse Recovery Charge	N-Ch	—	28	57	nC	P-Channel ④
		P-Ch	—	31	62		T_J = 25°C,I_F =-1.25A, di/dt = 100A/µs
t_{on}	Forward Turn-On Time	N-P	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				

Notes:

① Repetitive rating; pulse width limited by max. junction temperature. (See fig. 23)

② ≤ 2.0A, di/dt ≤ 100A/µs, V_{DD} ≤ $V_{(BR)DSS}$, T_J ≤ 150°C.
≤ -1.3A, di/dt ≤ 84A/µs, V_{DD} ≤ $V_{(BR)DSS}$, T_J ≤ 150°C.

③ Starting T_J = 25°C, L = 22mH R_G = 25Ω, I_{AS} = 2.0A. (See Figure 12)
Starting T_J = 25°C, L = 67mH R_G = 25Ω, I_{AS} = -1.3A.

④ Pulse width ≤ 300µs; duty cycle ≤ 2%.

⑤ Surface mounted on FR-4 board, t ≤ 10sec.

N-Channel

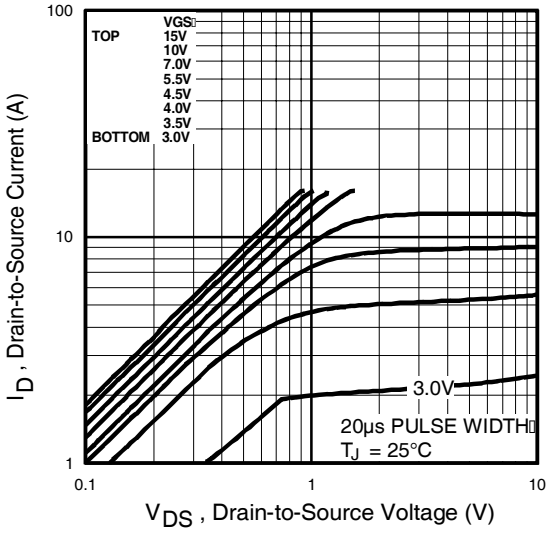


Fig 1. Typical Output Characteristics

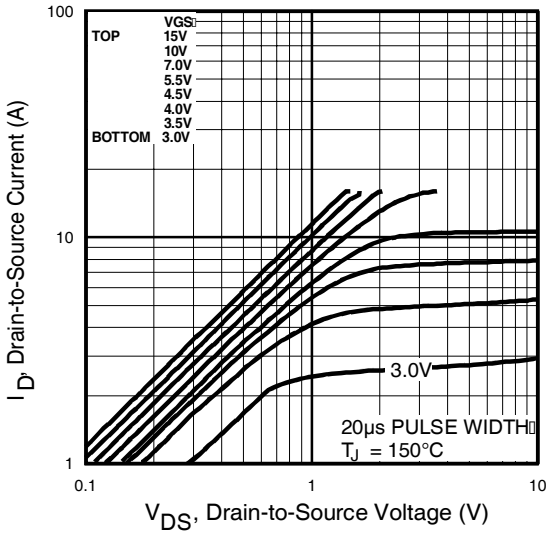


Fig 2. Typical Output Characteristics

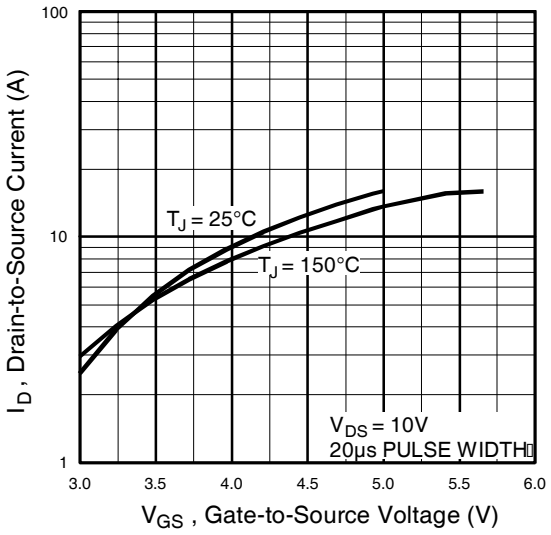


Fig 3. Typical Transfer Characteristics

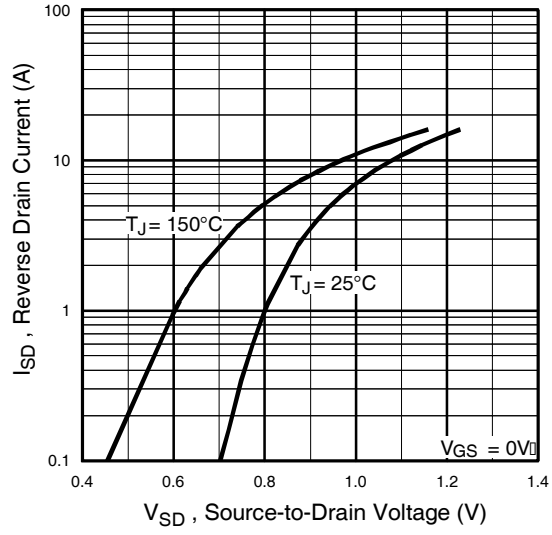


Fig 4. Typical Source-Drain Diode Forward Voltage

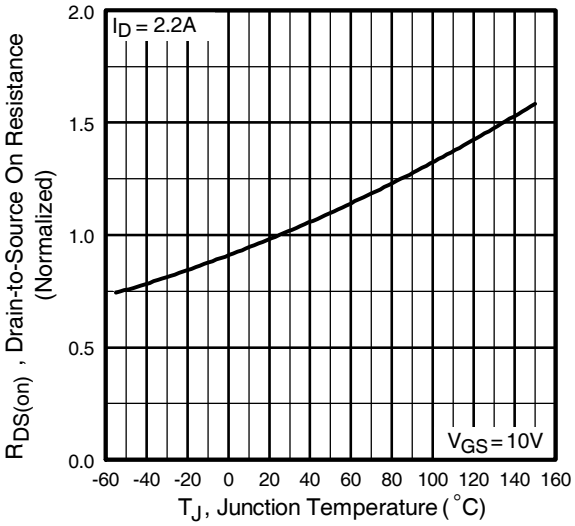


Fig 5. Normalized On-Resistance Vs. Temperature

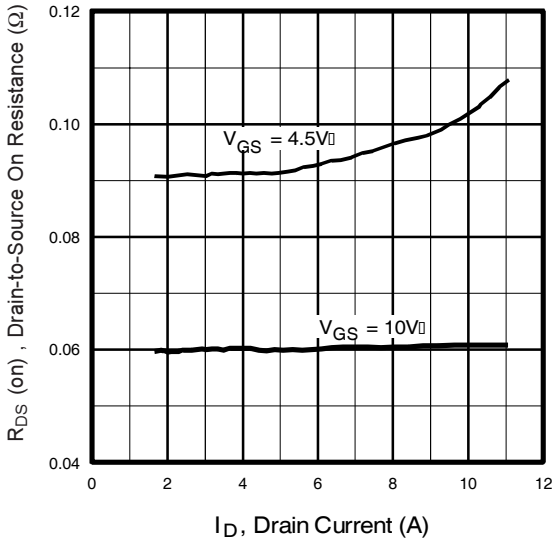


Fig 6. Typical On-Resistance Vs. Drain Current

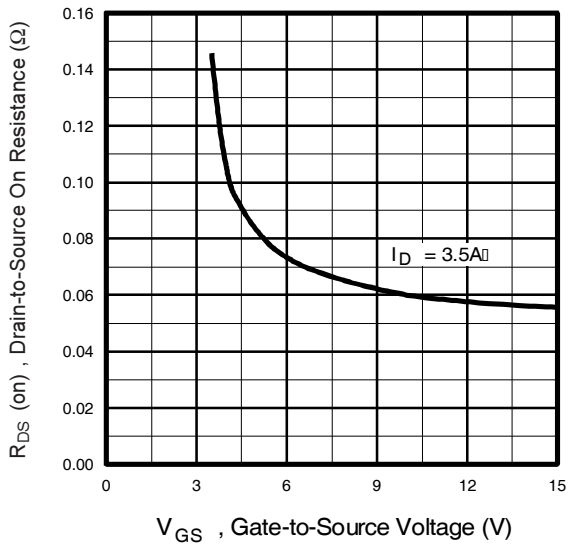


Fig 7. Typical On-Resistance Vs. Gate Voltage

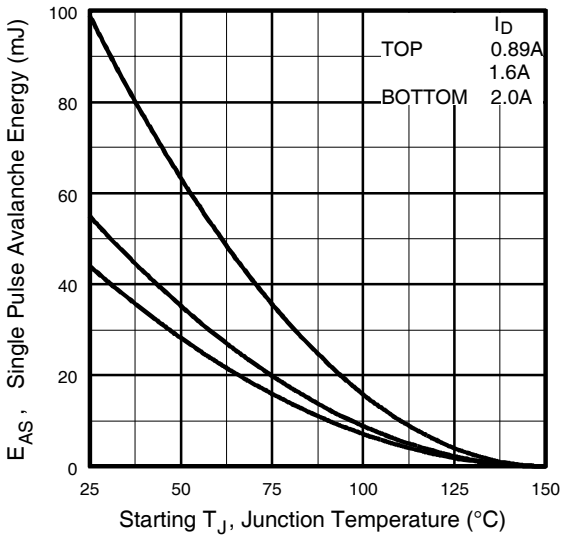


Fig 8. Maximum Avalanche Energy Vs. Drain Current

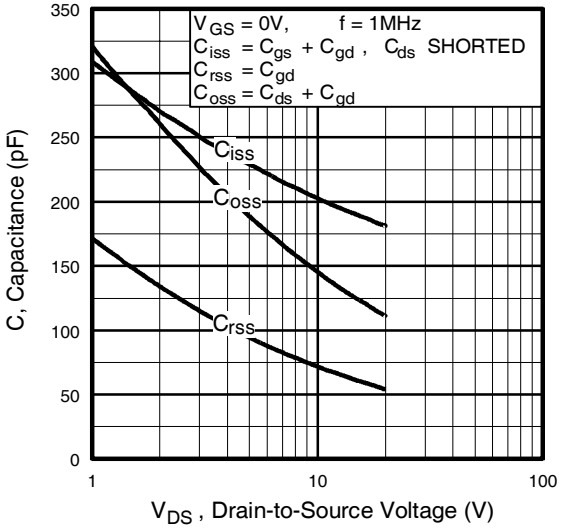


Fig 9. Typical Capacitance Vs. Drain-to-Source Voltage

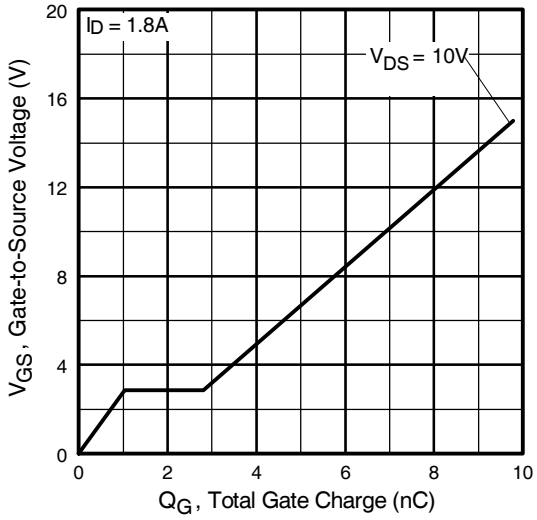


Fig 10. Typical Gate Charge Vs. Gate-to-Source Voltage

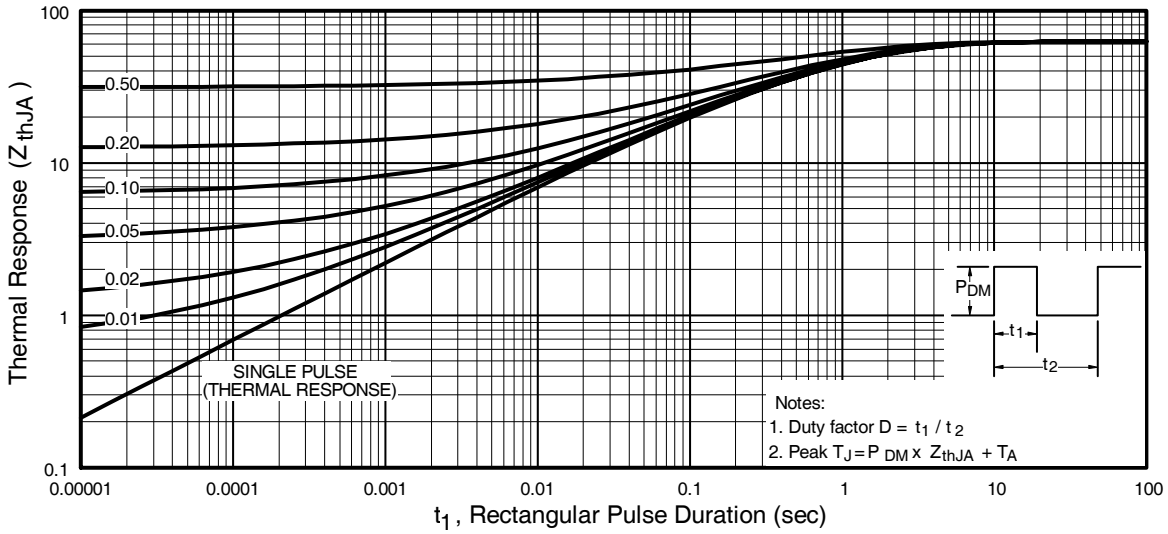


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

P-Channel

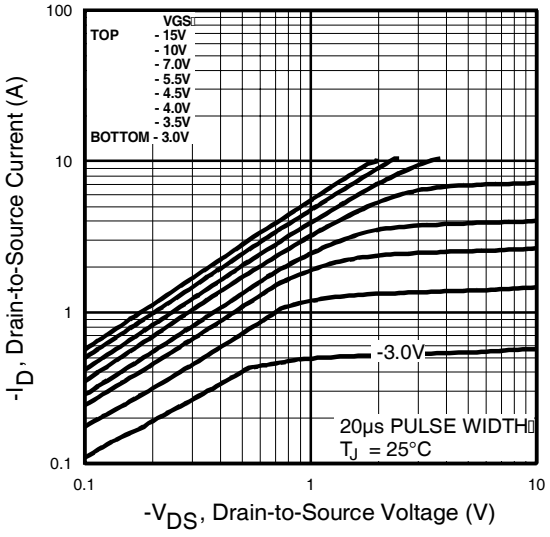


Fig 12. Typical Output Characteristics

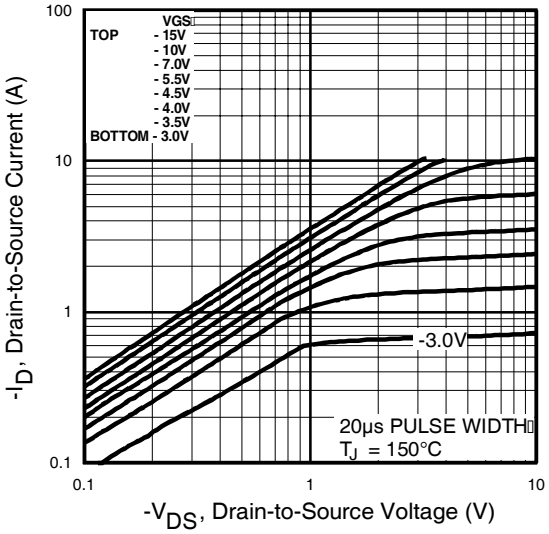


Fig 13. Typical Output Characteristics

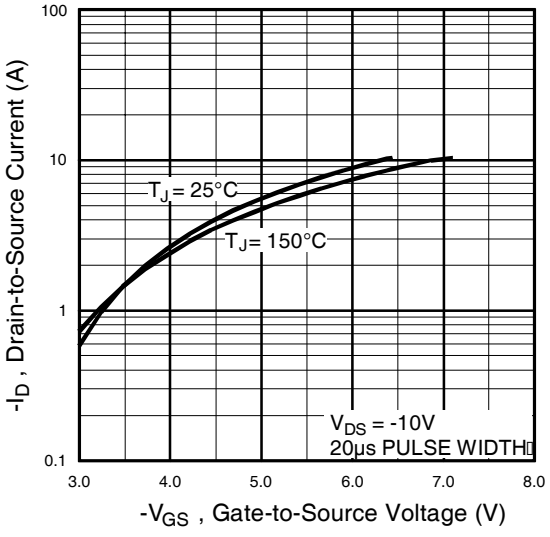


Fig 14. Typical Transfer Characteristics

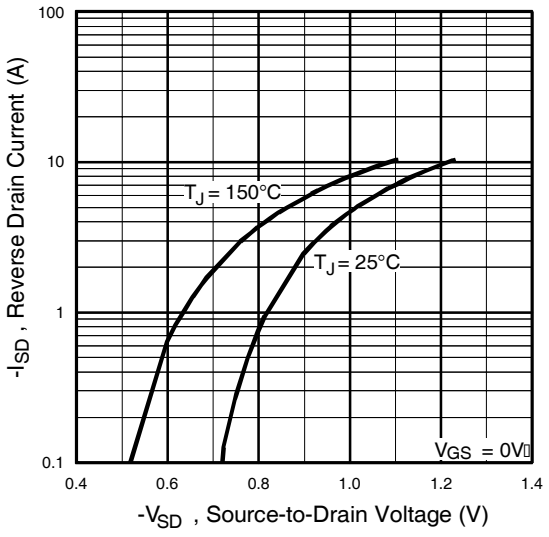


Fig 15. Typical Source-Drain Diode Forward Voltage

P-Channel

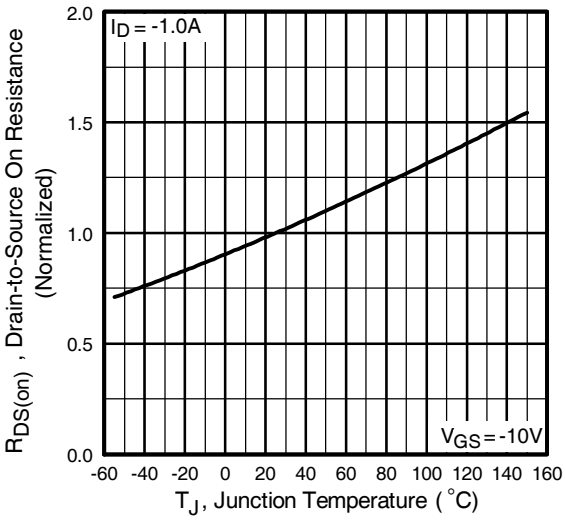


Fig 16. Normalized On-Resistance Vs. Temperature

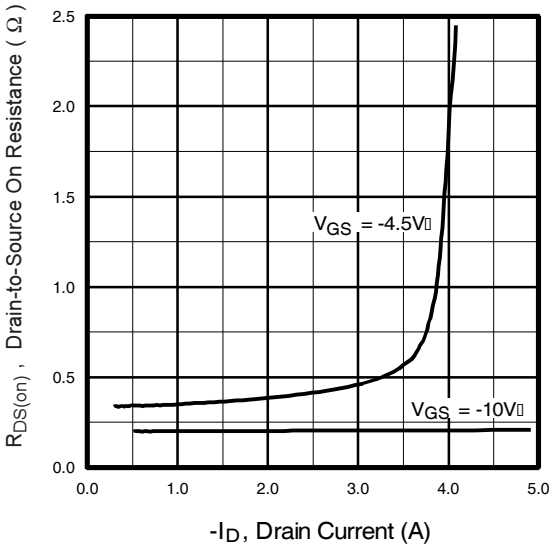


Fig 17. Typical On-Resistance Vs. Drain Current

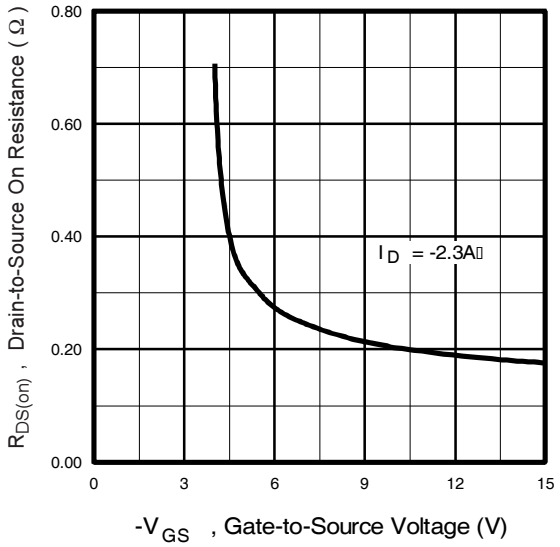


Fig 18. Typical On-Resistance Vs. Gate Voltage

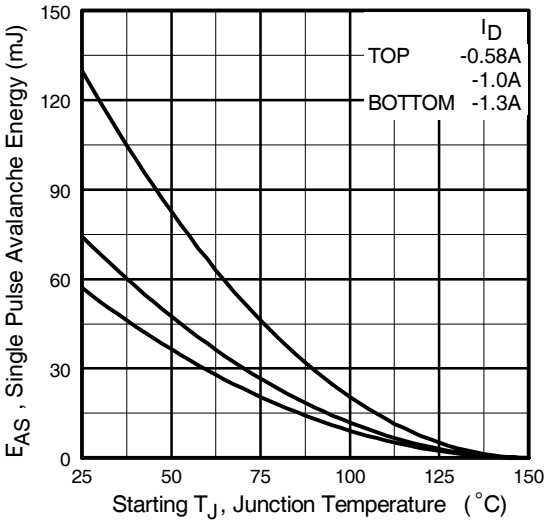


Fig 19. Maximum Avalanche Energy Vs. Drain Current

P-Channel

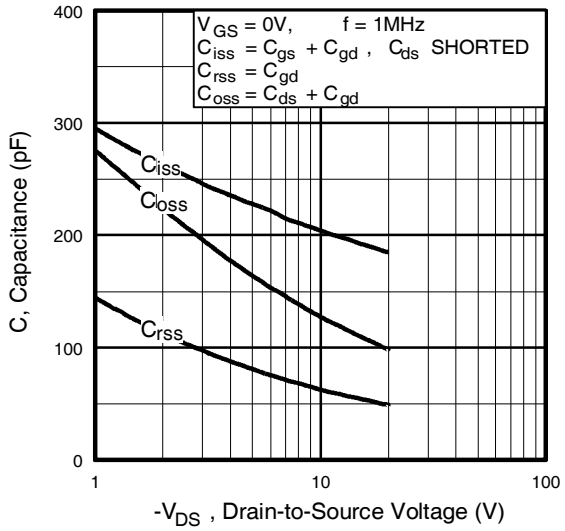


Fig 20. Typical Capacitance Vs. Drain-to-Source Voltage

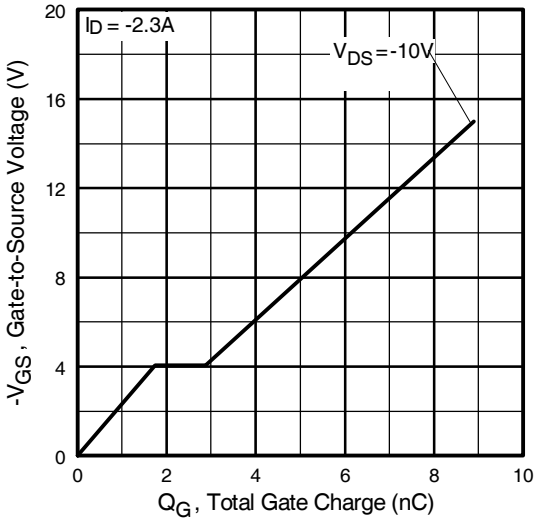


Fig 21. Typical Gate Charge Vs. Gate-to-Source Voltage

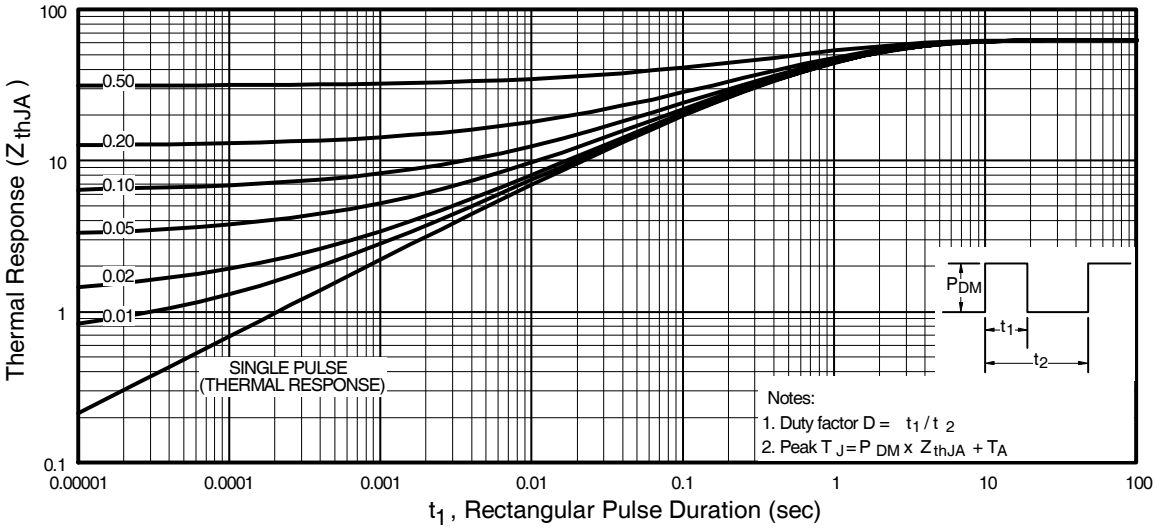
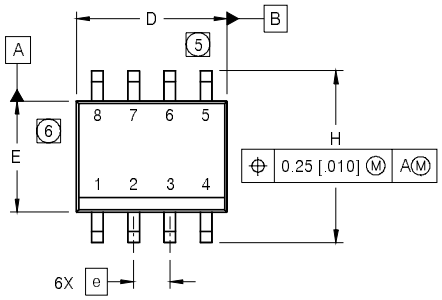


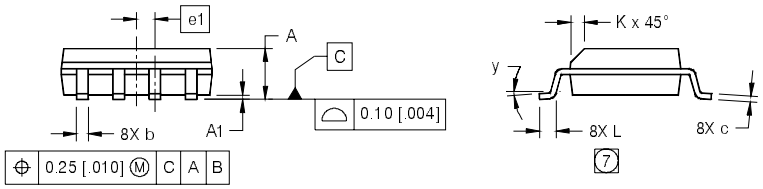
Fig 22. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

SO-8 Package Outline

Dimensions are shown in millimeters (inches)

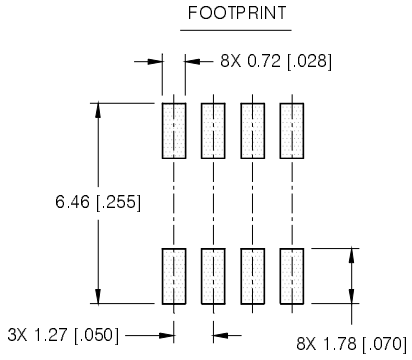


DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.0532	.0688	1.35	1.75
A1	.0040	.0098	0.10	0.25
b	.013	.020	0.33	0.51
c	.0075	.0098	0.19	0.25
D	.189	.1968	4.80	5.00
E	.1497	.1574	3.80	4.00
e	.050 BASIC		1.27 BASIC	
e 1	.025 BASIC		0.635 BASIC	
H	.2284	.2440	5.80	6.20
K	.0099	.0196	0.25	0.50
L	.016	.050	0.40	1.27
y	0°	8°	0°	8°

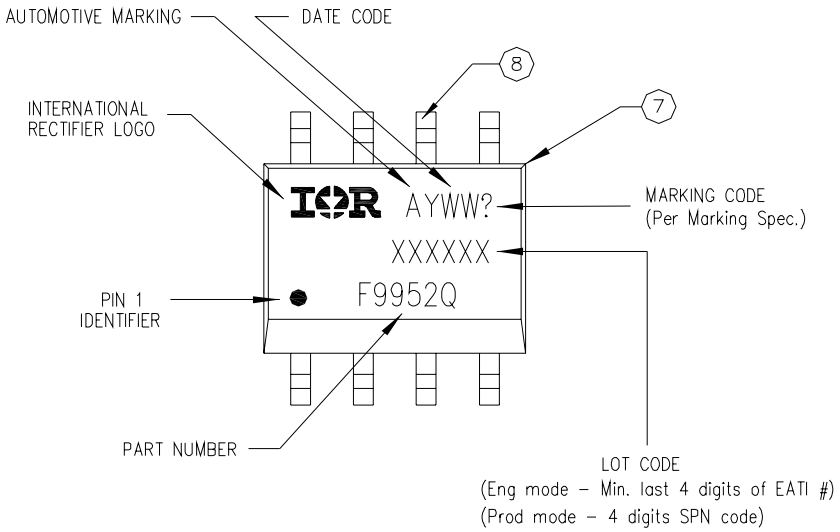


NOTES:

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.



SO-8 Part Marking

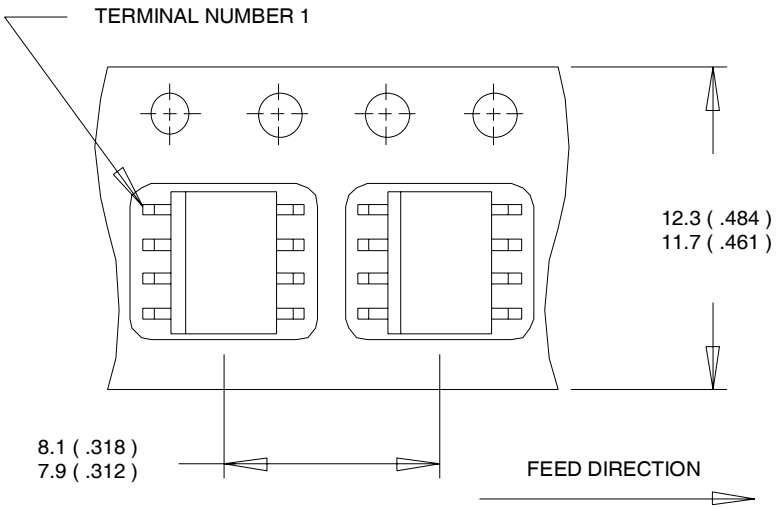


Notes:

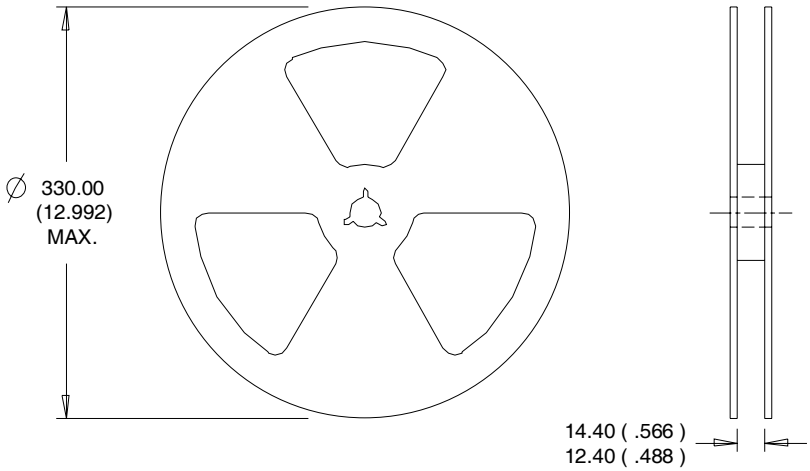
1. For an Automotive Qualified version of this part please see http://www.irf.com/product-info/auto/
2. For the most current drawing please refer to IR website at http://www.irf.com/package/

SO-8 Tape and Reel

Dimensions are shown in millimeters (inches)



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.

Qualification Information†

Qualification Level		Automotive (per AEC-Q101) ††	
		Comments: This part number(s) passed Automotive qualification. IR's Industrial and Consumer qualification level is granted by extension of the higher Automotive level.	
Moisture Sensitivity Level		SO-8	MSL1
ESD	Machine Model	Class Q1(N) = M1A (+/- 50V)††† , Q2(P) = M1A (+/- 50V)††† AEC-Q101-002	
	Human Body Model	Class Q1(N) = H0 (+/- 150V)††† , Q2(P) = H0 (+/- 150V)††† AEC-Q101-001	
	Charged Device Model	Class Q1(N) = C4 (+/- 1000V)††† , Q2(P) = C4 (+/- 1000V)††† AEC-Q101-005	
RoHS Compliant		Yes	

† Qualification standards can be found at International Rectifier's web site: http//www.irf.com/

†† Exceptions to AEC-Q101 requirements are noted in the qualification report.

††† Highest passing voltage.

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For technical support, please contact IR's Technical Assistance Center
http://www.irf.com/technical-info/

WORLD HEADQUARTERS:
101 N. Sepulveda Blvd., El Segundo, California 90245
Tel: (310) 252-7105

Revision History

Date	Comments
3/5/2014	• Added "Logic Level Gate Drive" bullet in the features section on page 1. • Updated data sheet with new IR corporate template.