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

	Parameter		Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	N-Ch	55	—	—	V	V_{GS} = 0V, I_D = 250µA
		P-Ch	-55	—	—		V_{GS} = 0V, I_D = -250µA
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	N-Ch	—	0.059	—	V/°C	Reference to 25°C, I_D = 1mA
		P-Ch	—	0.054	—		Reference to 25°C, I_D = -1mA
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	N-Ch	—	0.043	0.050	Ω	V_{GS} = 10V, I_D = 4.7A ④
			—	0.056	0.065		V_{GS} = 4.5V, I_D = 3.8A ④
		P-Ch	—	0.095	0.105		V_{GS} = -10V, I_D = -3.4A ⑤
			—	0.150	0.170		V_{GS} = -4.5V, I_D = -2.7A ④
$V_{GS(th)}$	Gate Threshold Voltage	N-Ch	1.0	—	—	V	V_{DS} = V_{GS}, I_D = 250µA
		P-Ch	-1.0	—	—		V_{DS} = V_{GS}, I_D = -250µA
gfs	Forward Trans conductance	N-Ch	7.9	—	—	S	V_{DS} = 10V, I_D = 4.5A④
		P-Ch	3.3	—	—		V_{DS} = -10V, I_D = -3.1A④
I_{DSS}	Drain-to-Source Leakage Current	N-Ch	—	—	2.0	µA	V_{DS} = 55V, V_{GS} = 0V
		P-Ch	—	—	-2.0		V_{DS} = -55V,V_{GS} = 0V
		N-Ch	—	—	25		V_{DS} = 55V, V_{GS} = 0V ,T_J = 55°C
		P-Ch	—	—	-25		V_{DS} = -55V,V_{GS} = 0V,T_J = 55°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)

Q_g	Total Gate Charge	N-Ch	—	24	36	nC	N-Channel I_D = 4.5A, V_{DS} = 44V,V_{GS} = 10V ④ P-Channel I_D = - 3.1A,V_{DS} = -44V,V_{GS} = -10V
		P-Ch	—	26	38		
Q_{gs}	Gate-to-Source Charge	N-Ch	—	2.3	3.4		
		P-Ch	—	3.0	4.5		
Q_{gd}	Gate-to-Drain Charge	N-Ch	—	7.0	10		
		P-Ch	—	8.4	13		
$t_{d(on)}$	Turn-On Delay Time	N-Ch	—	8.3	12	ns	N-Channel V_{DD} = 28V,I_D = 1.0A,R_G = 6.0Ω, R_D = 28Ω ④ P-Channel V_{DD} = -28V,I_D = -1.0A,R_G = 6.0Ω, R_D = 28Ω
		P-Ch	—	14	22		
t_r	Rise Time	N-Ch	—	3.2	4.8		
		P-Ch	—	10	15		
$t_{d(off)}$	Turn-Off Delay Time	N-Ch	—	32	48		
		P-Ch	—	43	64		
t_f	Fall Time	N-Ch	—	13	20		
		P-Ch	—	22	32		
C_{iss}	Input Capacitance	N-Ch	—	740	—	pF	N-Channel V_{GS} = 0V,V_{DS} = 25V,f = 1.0MHz P-Channel V_{GS} = 0V,V_{DS} = -25V,f = 1.0MHz
		P-Ch	—	690	—		
C_{oss}	Output Capacitance	N-Ch	—	190	—		
		P-Ch	—	210	—		
C_{rss}	Reverse Transfer Capacitance	N-Ch	—	71	—		
		P-Ch		86	—		

Diode Characteristics

	Parameter		Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	N-Ch	—	—	2.0	A	
		P-Ch	—	—	-2.0		
I_{SM}	Pulsed Source Current (Body Diode) ①	N-Ch	—	—	38		
		P-Ch	—	—	-27		
V_{SD}	Diode Forward Voltage	N-Ch	—	0.70	1.2	V	T_J = 25°C,I_S = 2.0A,V_{GS} = 0V ④
		P-Ch	—	-0.80	-1.2		T_J = 25°C,I_S = -2.0A,V_{GS} = 0V ④
t_{rr}	Reverse Recovery Time	N-Ch	—	60	90	ns	N-Channel T_J = 25°C ,I_F = 2.0A, di/dt = 100A/µs P-Channel ④ T_J = 25°C,I_F = -2.0A, di/dt = 100A/µs
		P-Ch	—	54	80		
Q_{rr}	Reverse Recovery Charge	N-Ch	—	120	170	nC	
		P-Ch		85	130		

Notes:

① Repetitive rating; pulse width limited by max. junction temperature. (See Fig. 22)

② N-Channel I_{SD} ≤ 4.7A, di/dt ≤ 220A/µs, V_{DD} ≤ $V_{(BR)DSS}$, T_J ≤ 150°C.
P-Channel I_{SD} ≤ -3.4A, di/dt ≤ -150A/µs, V_{DD} ≤ $V_{(BR)DSS}$, T_J ≤ 150°C

③ N-Channel Starting T_J = 25°C, L = 6.5mH, R_G = 25Ω, I_{AS} = 4.7A.
P-Channel Starting T_J = 25°C, L = 20mH, R_G = 25Ω, I_{AS} = -3.4A.

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

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

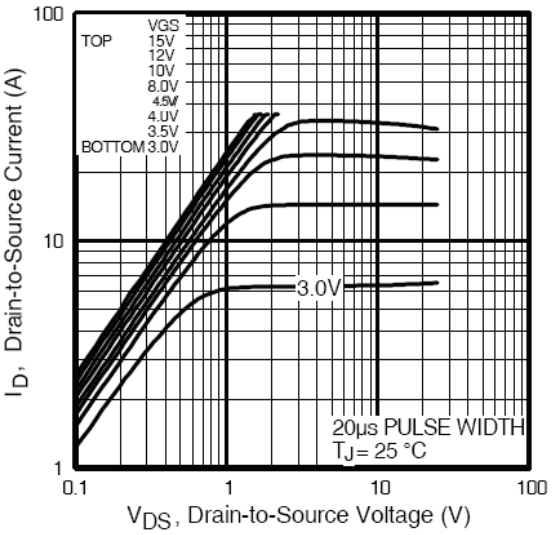


Fig. 1 Typical Output Characteristics

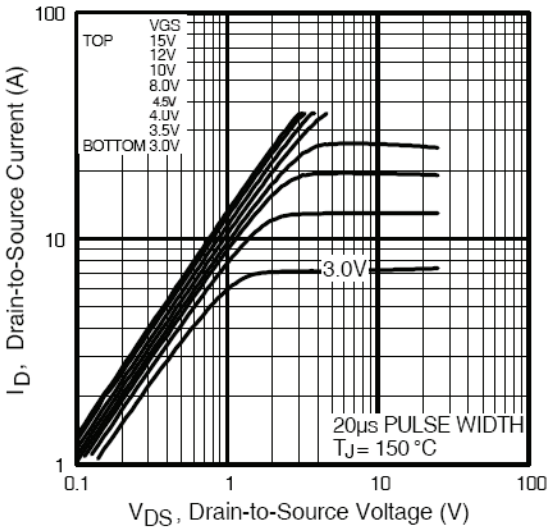


Fig. 2 Typical Output Characteristics

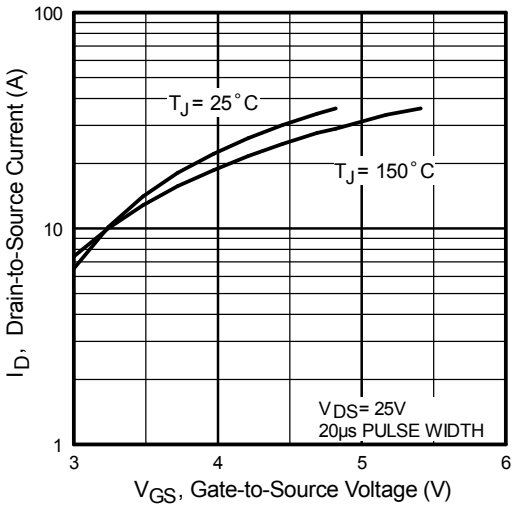


Fig. 3 Typical Transfer Characteristics

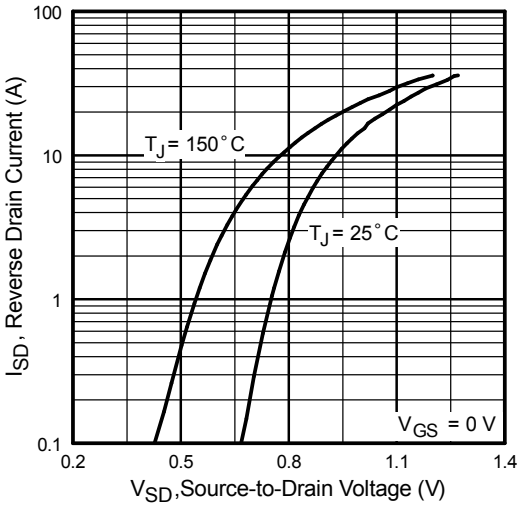


Fig. 4 Typical Source-Drain Diode Forward Voltage

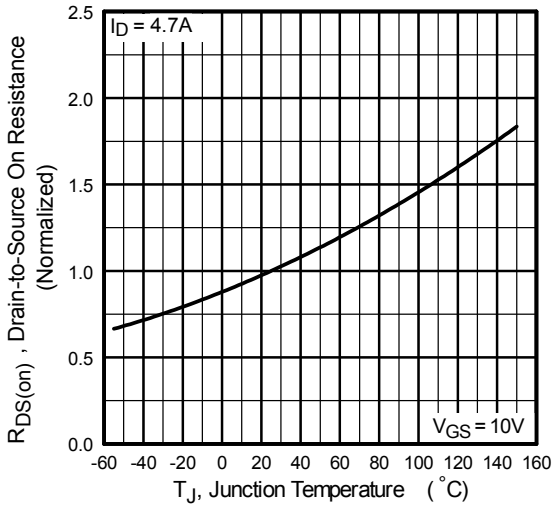


Fig 5. Normalized On-Resistance Vs. Temperature

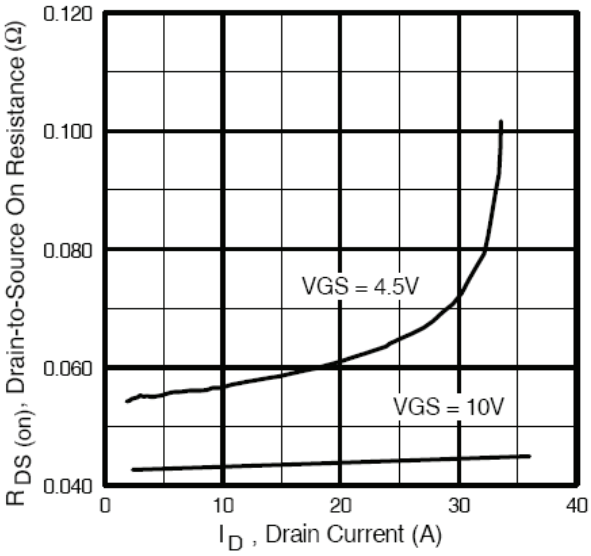


Fig 6. Typical On-Resistance Vs. Drain Current

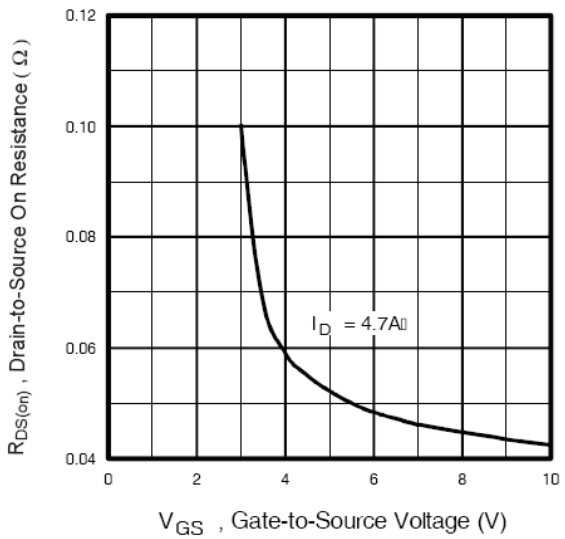


Fig. 7 Typical On-Resistance Vs. Gate Voltage

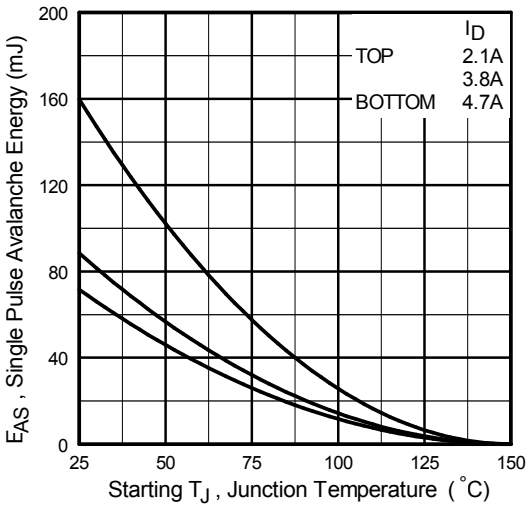


Fig 8. Maximum Avalanche Energy Vs. Drain Current

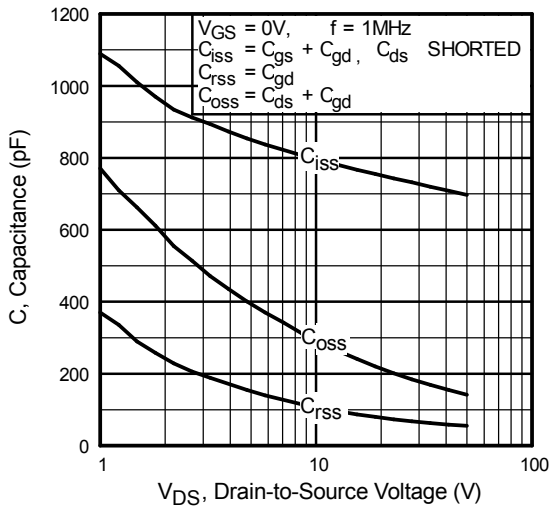


Fig 9. Typical Capacitance Vs. Drain-to-Source Voltage

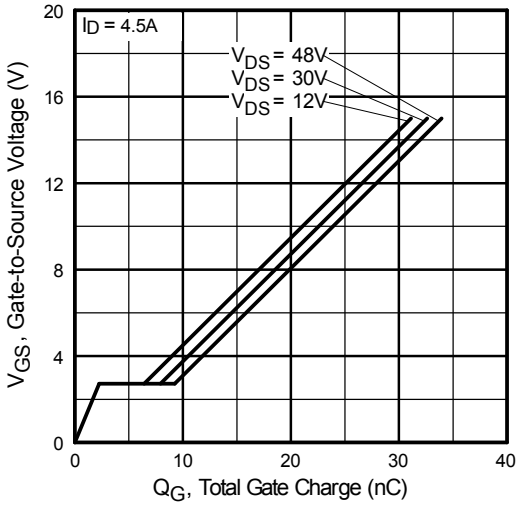


Fig 10. Typical Gate Charge Vs. Gate-to-Source Voltage

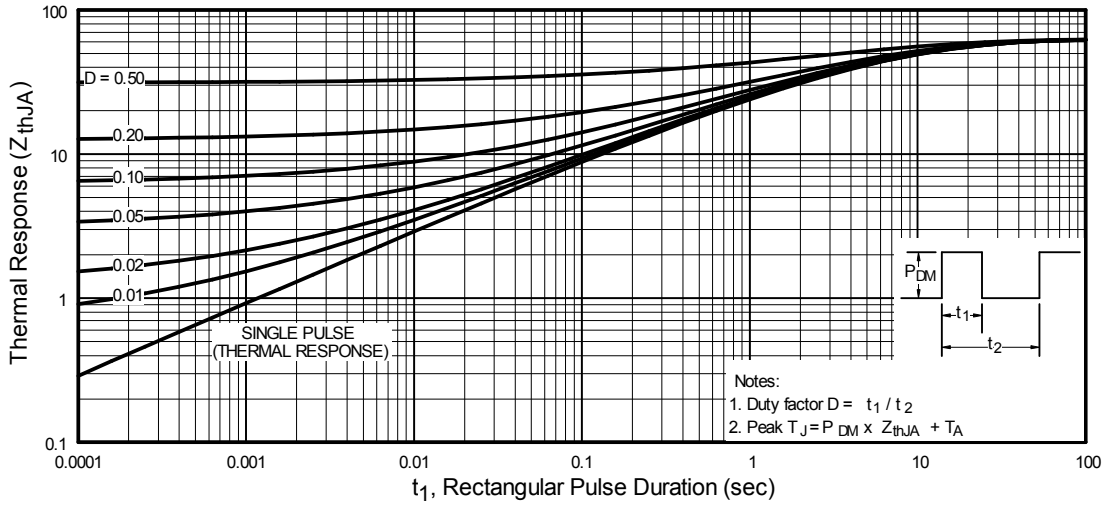


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

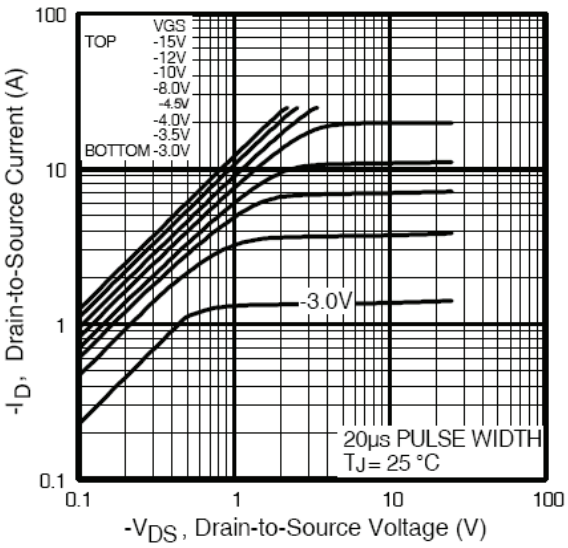


Fig. 12 Typical Output Characteristics

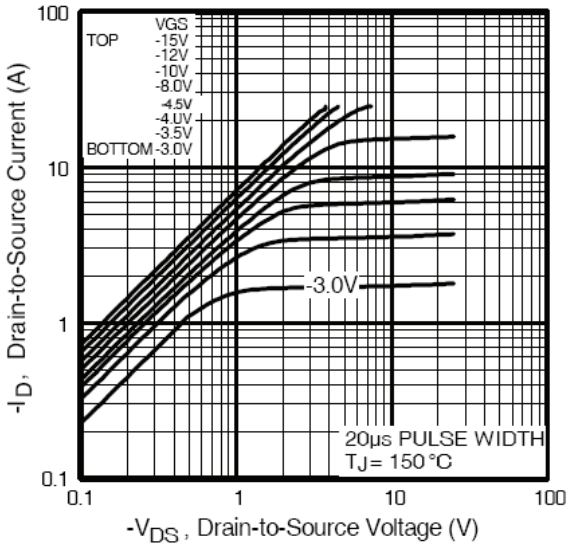


Fig. 13 Typical Output Characteristics

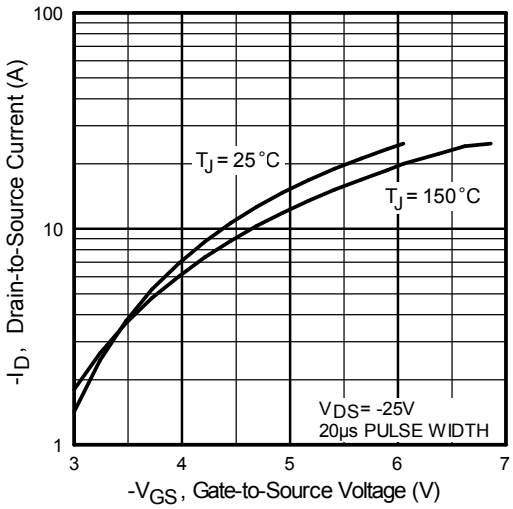


Fig. 14 Typical Transfer Characteristics

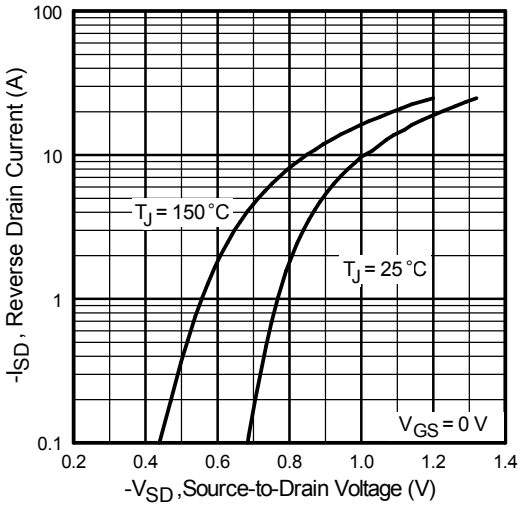


Fig. 15 Typical Source-Drain Diode Forward Voltage

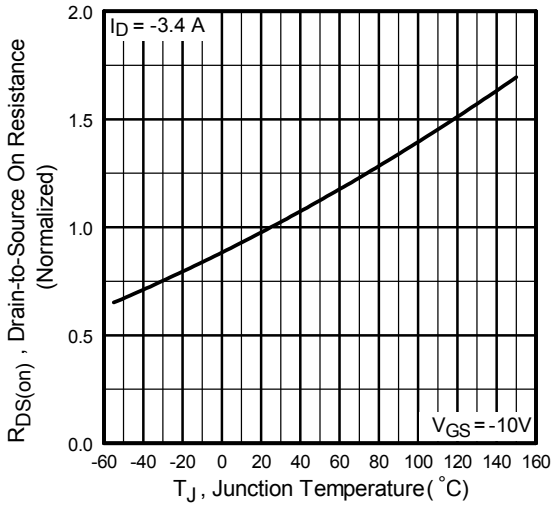


Fig 16. Normalized On-Resistance Vs. Temperature

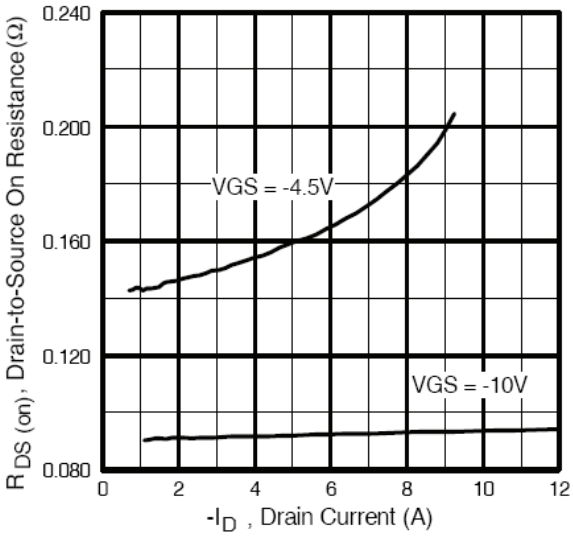


Fig 17. Typical On-Resistance Vs. Drain Current

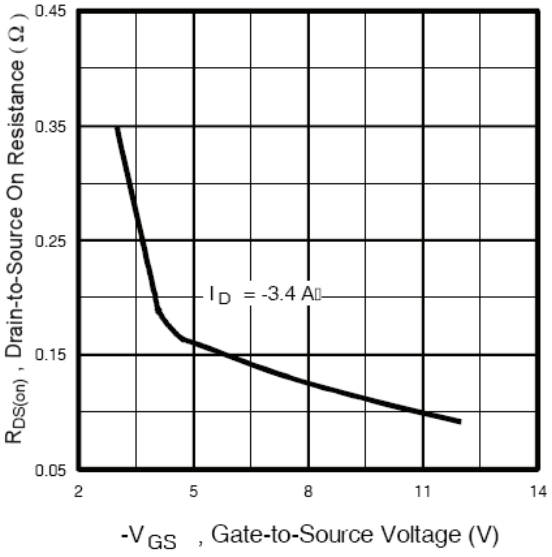


Fig. 18 Typical On-Resistance Vs. Gate Voltage

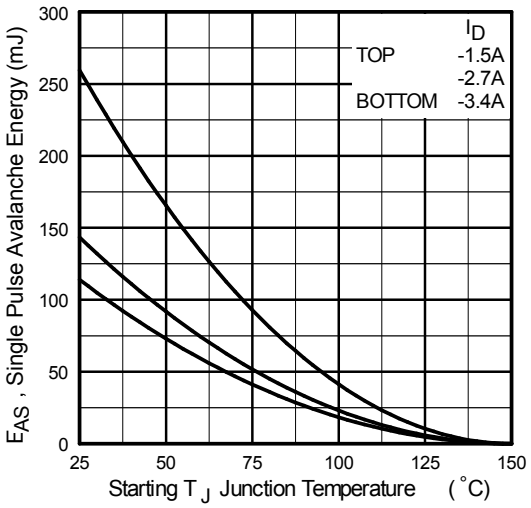


Fig 19. Maximum Avalanche Energy Vs. Drain Current

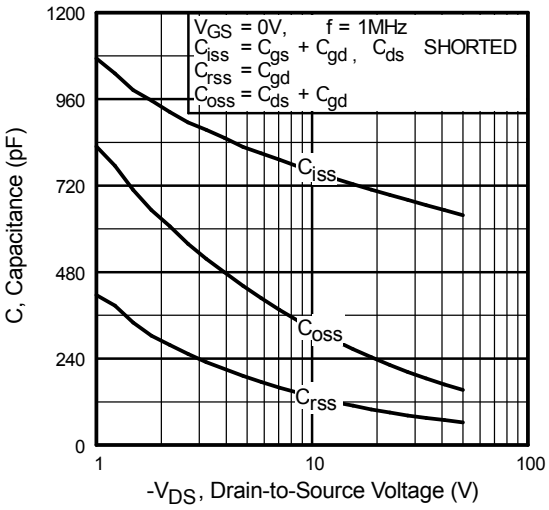


Fig 20. Typical Capacitance Vs. Drain-to-Source Voltage

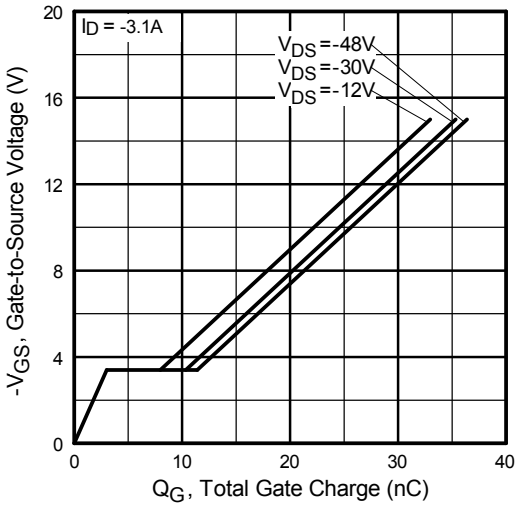


Fig 21. Typical Gate Charge Vs. Gate-to-Source Voltage

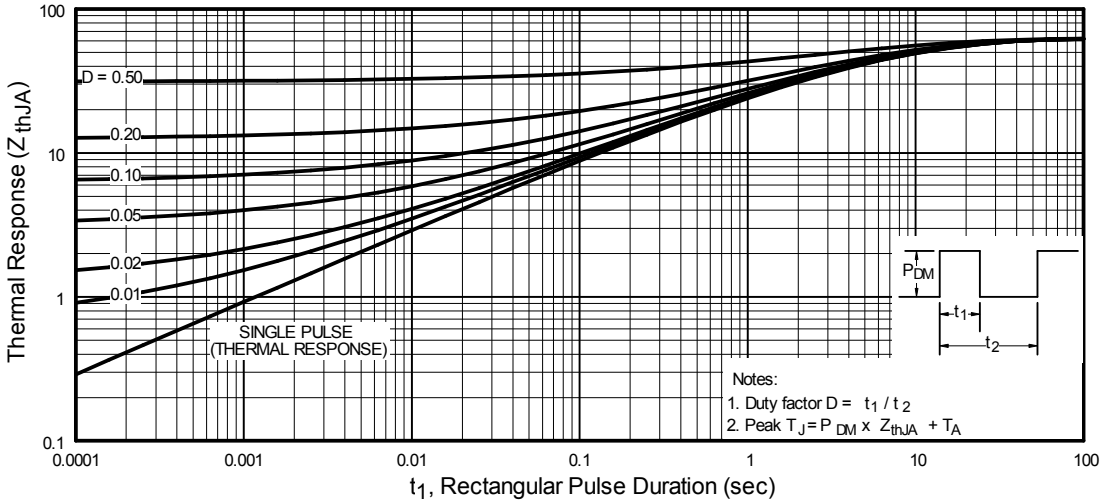
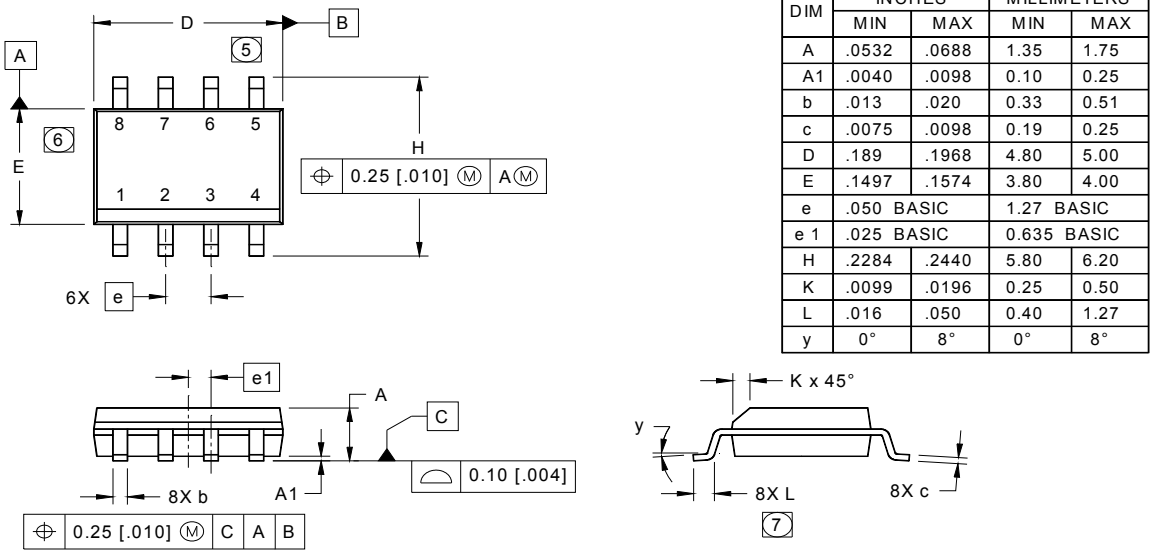


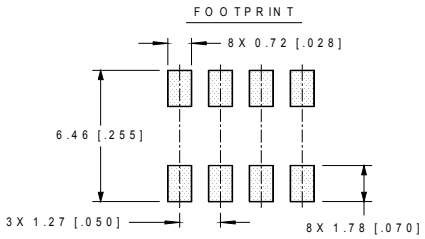
Fig 22. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

SO-8 Package Outline (Dimensions are shown in millimeters (inches)

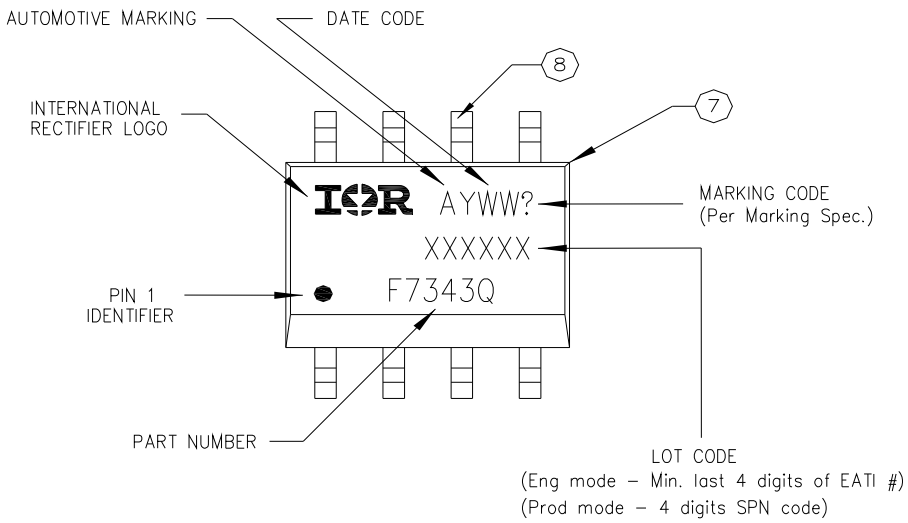


DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.0532	.0688	1.35	1.75
A1	.0040	.0098	0.10	0.25
b	.013	.020	0.33	0.51
c	.0075	.0098	0.19	0.25
D	.189	.1968	4.80	5.00
E	.1497	.1574	3.80	4.00
e	.050 BASIC		1.27 BASIC	
e 1	.025 BASIC		0.635 BASIC	
H	.2284	.2440	5.80	6.20
K	.0099	.0196	0.25	0.50
L	.016	.050	0.40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

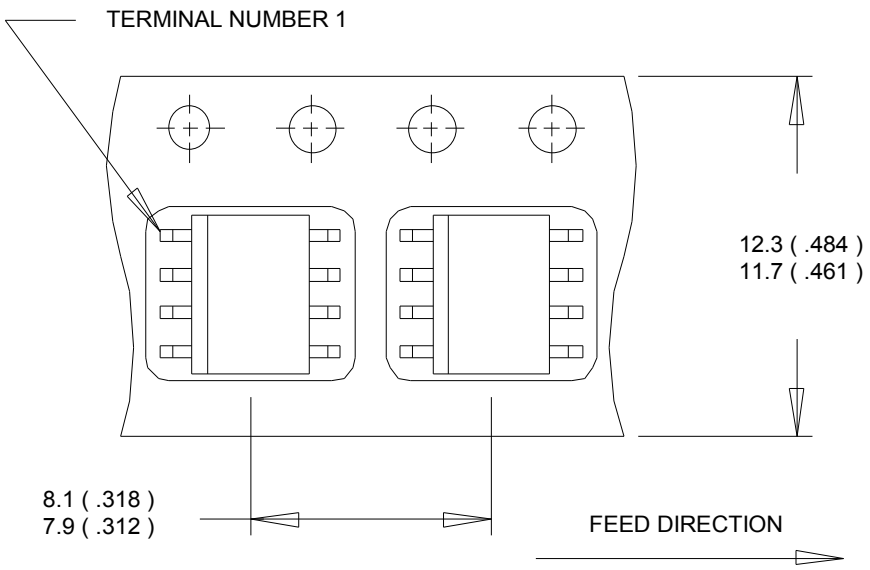
NOTES:
1. DIMENSIONING & TOLERANCING PER ASME Y14.5M-1994.
2. CONTROLLING DIMENSION: MILLIMETER
3. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
4. OUTLINE CONFORMS TO JEDEC OUTLINE MS-012AA.
5. DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.15 [.006].
6. DIMENSION DOES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



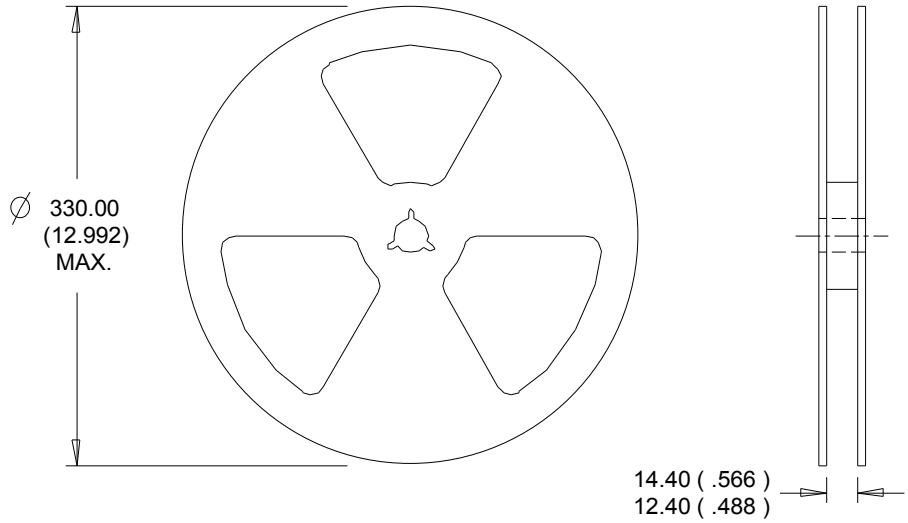
SO-8 Part Marking Information



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. Infineon'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 M2 (+/- 200V)† AEC-Q101-002	
	Human Body Model	Class H1A (+/- 500V)† AEC-Q101-001	
	Charged Device Model	Class C5 (+/- 1125V)† AEC-Q101-005	
RoHS Compliant		Yes	

† Highest passing voltage.

Revision History

Date	Comments
3/10/2014	• Added "Logic Level Gate Drive" bullet in the features section on page 1 • Updated data sheet with new IR corporate template
9/30/2015	• Updated datasheet with corporate template • Corrected ordering table on page 1.

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