Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V_{DSS}	-30	V
Gate-Source Voltage			V_{GSS}	±20	V
Continuous Drain Current (Note 7) V_{GS} = -10V	Steady State	T_A = +25°C T_A = +70°C	I_D	-17.0 -13.0	A
	t<10s	T_A = +25°C T_A = +70°C	I_D	-27.0 -21.0	A
Continuous Drain Current (Note 7) V_{GS} = -4.5V	Steady State	T_A = +25°C T_A = +70°C	I_D	-14.5 -11.5	A
	t<10s	T_A = +25°C T_A = +70°C	I_D	-23.0 -18.0	A
Pulsed Drain Current (10µs pulse, duty cycle = 1%)			I_{DM}	-100	A
Maximum Body Diode Forward Current (Note 7)			I_S	5.5	A
Avalanche Current (Note 8)			I_{AS}	47	A
Avalanche Energy (Note 8)			E_{AS}	113	mJ

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 6)		P_D	1.7	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady state	$R_{\theta JA}$	72	°C/W
	t<10s		29	°C/W
Total Power Dissipation (Note 7)		P_D	3.4	W
Thermal Resistance, Junction to Ambient (Note 7)	Steady state	$R_{\theta JA}$	37	°C/W
	t<10s		15	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 9)						
Drain-Source Breakdown Voltage	BV_{DSS}	-30	—	—	V	V_{GS} = 0V, I_D = -250µA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	-1	µA	V_{DS} = -30V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	±100	nA	V_{GS} = ±20V, V_{DS} = 0V
ON CHARACTERISTICS (Note 9)						
Gate Threshold Voltage	$V_{GS(th)}$	-1.1	-1.6	-2.1	V	V_{DS} = V_{GS}, I_D = -250µA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	—	6.5	8	mΩ	V_{GS} = -10V, I_D = -10A
		—	7.2	10.2		V_{GS} = -4.5V, I_D = -10A
Forward Transfer Admittance	$\|Y_{fs}\|$	—	30	—	S	V_{DS} = -15V, I_D = -10A
Diode Forward Voltage	V_{SD}	—	-0.65	-1.0	V	V_{GS} = 0V, I_S = -1A
DYNAMIC CHARACTERISTICS (Note 10)						
Input Capacitance	C_{iss}	—	6234	—	pF	V_{DS} = 15V, V_{GS} = 0V f = 1.0MHz
Output Capacitance	C_{oss}	—	1500	—		
Reverse Transfer Capacitance	C_{rss}	—	774	—		
Gate Resistance	R_G	—	1.28	—	µ	V_{DS} = 0V, V_{GS} = 0V, f = 1.0MHz
Total Gate Charge	Q_g	—	59.2	—	nC	V_{DS} = -15V, V_{GS} = -4.5V, I_D = -10A
Gate-Source Charge	Q_{gs}	—	16.1	—		
Gate-Drain Charge	Q_{gd}	—	15.7	—		
Turn-On Delay Time	$t_{D(on)}$	—	11.4	—	ns	V_{DS} = -15V, V_{GEN} = -10V, R_G = 6Ω, I_D = -1A
Turn-On Rise Time	t_r	—	9.4	—		
Turn-Off Delay Time	$t_{D(off)}$	—	260.7	—		
Turn-Off Fall Time	t_f	—	99.3	—		

Notes:
6. Device mounted on FR-4 PC board, with minimum recommended pad layout, single sided.
7. Device mounted on FR-4 substrate PCB, 2oz copper, with thermal bias to bottom layer 1inch square copper plate.
8. .UIS in production with L = 0.1mH, T_J = +25°C.
9. Short duration pulse test used to minimize self-heating effect.
10. Guaranteed by design. Not subject to production testing.

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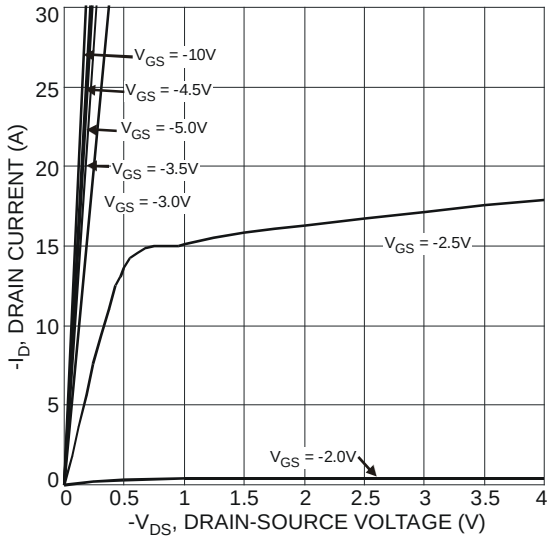

Figure 1 Typical Output Characteristics

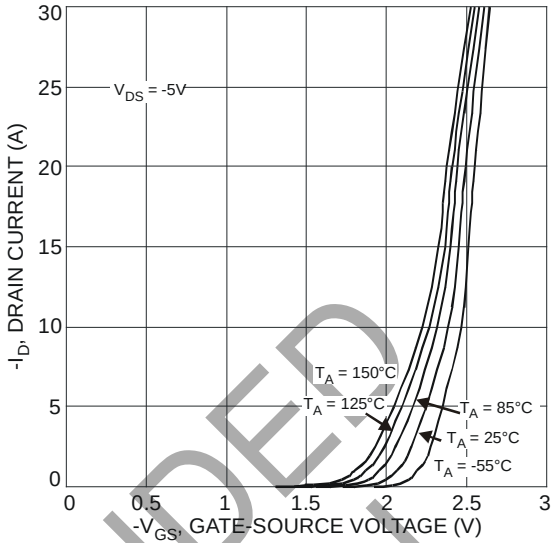

Figure 2 Typical Transfer Characteristics

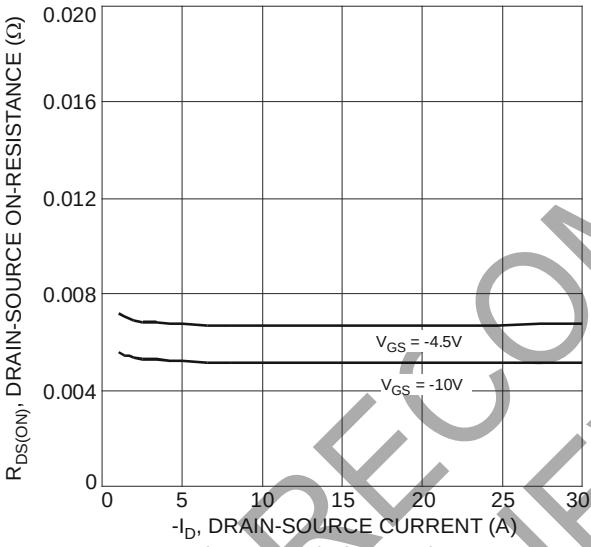

Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

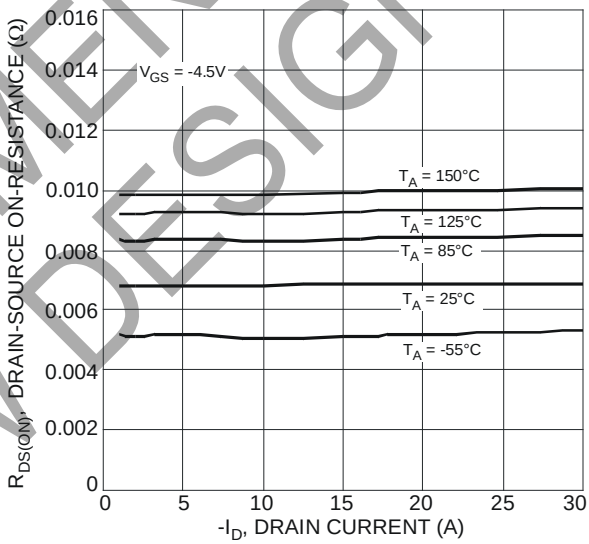

Figure 4 Typical On-Resistance vs. Drain Current and Temperature

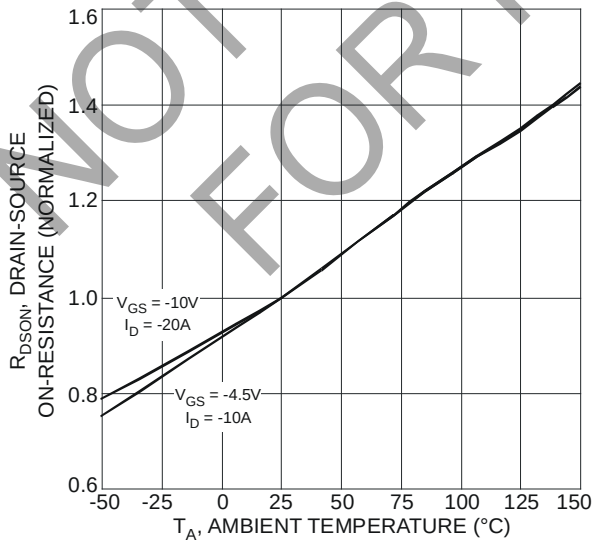

Figure 5 On-Resistance Variation with Temperature

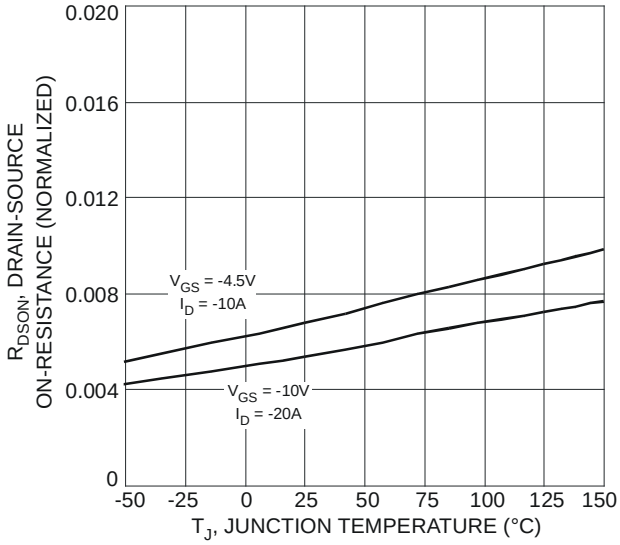

Figure 6 On-Resistance Variation with Temperature

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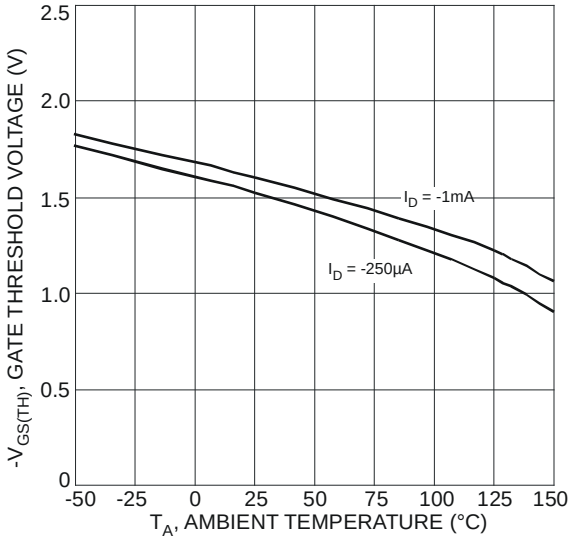

Figure 7 Gate Threshold Variation vs. Ambient Temperature

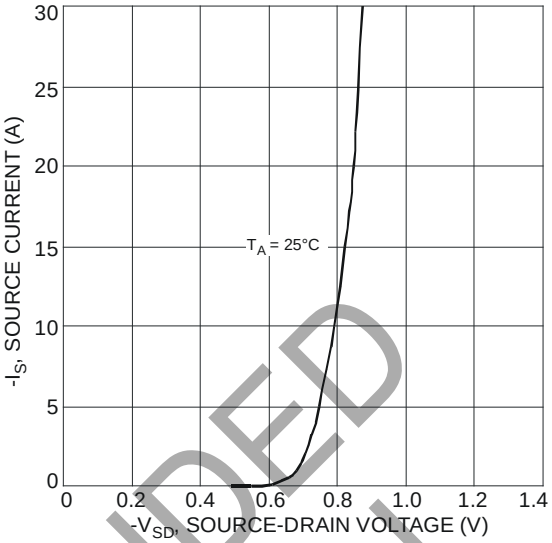

Figure 8 Diode Forward Voltage vs. Current

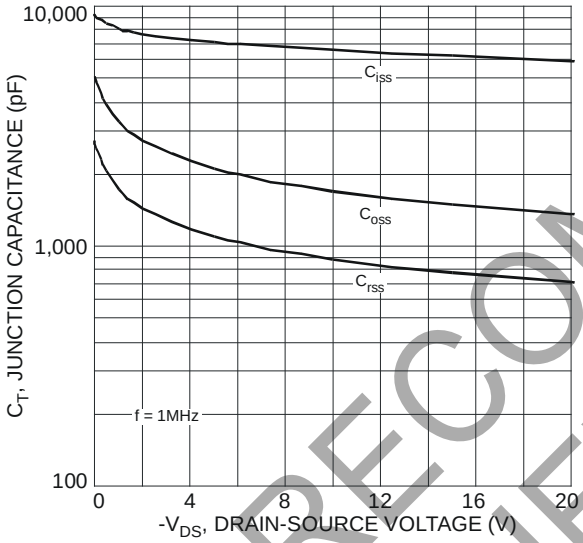

Figure 9 Typical Total Capacitance

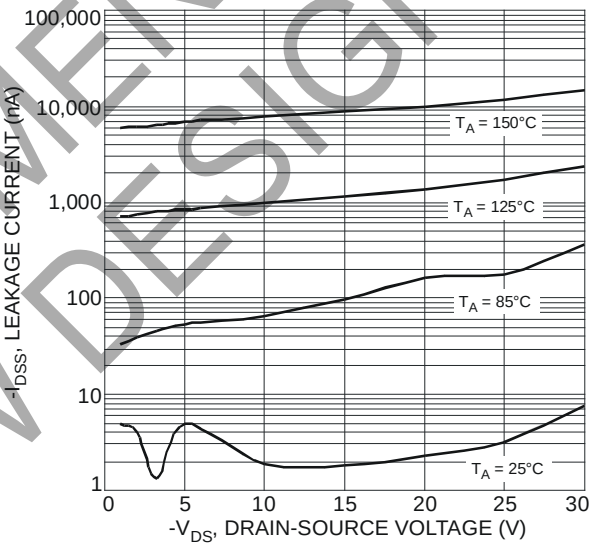

Figure 10 Typical Leakage Current vs. Drain-Source Voltage

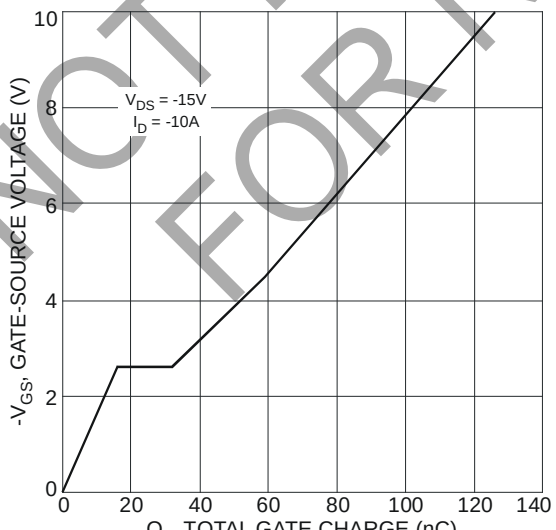

Figure 11 Gate-Source Voltage vs. Total Gate Charge

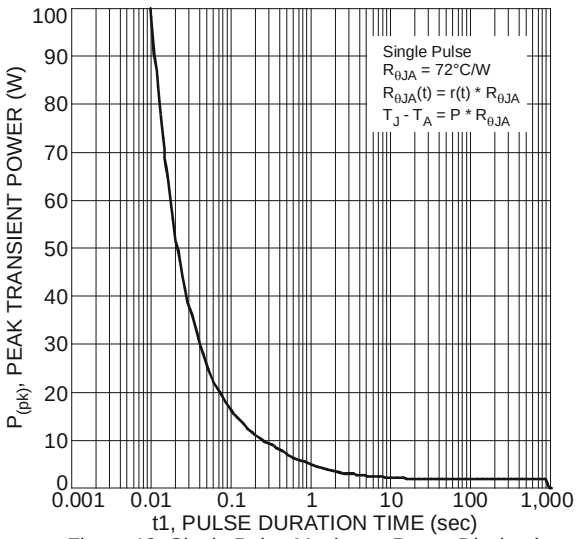

Figure 12 Single Pulse Maximum Power Dissipation

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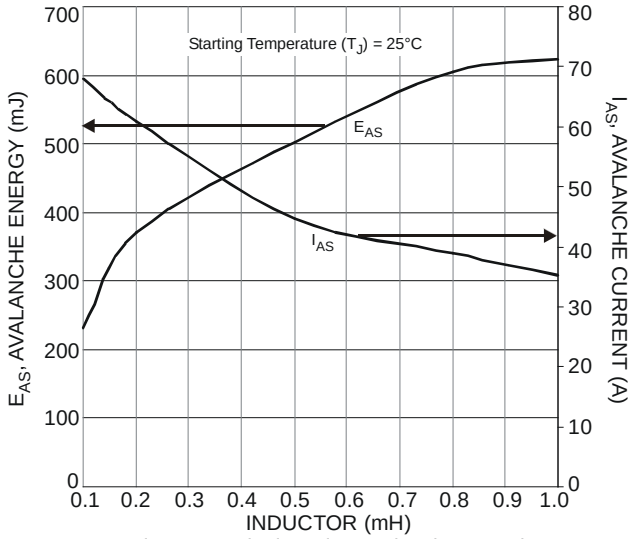

Figure 13 Single-Pulse Avalanche Tested

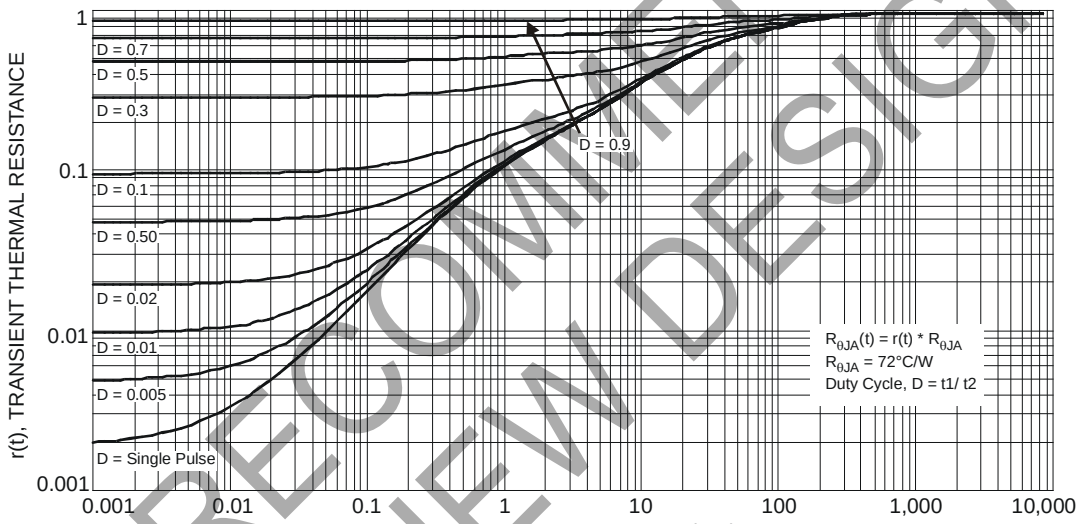

Figure 14 Transient Thermal Resistance

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Package Outline Dimensions

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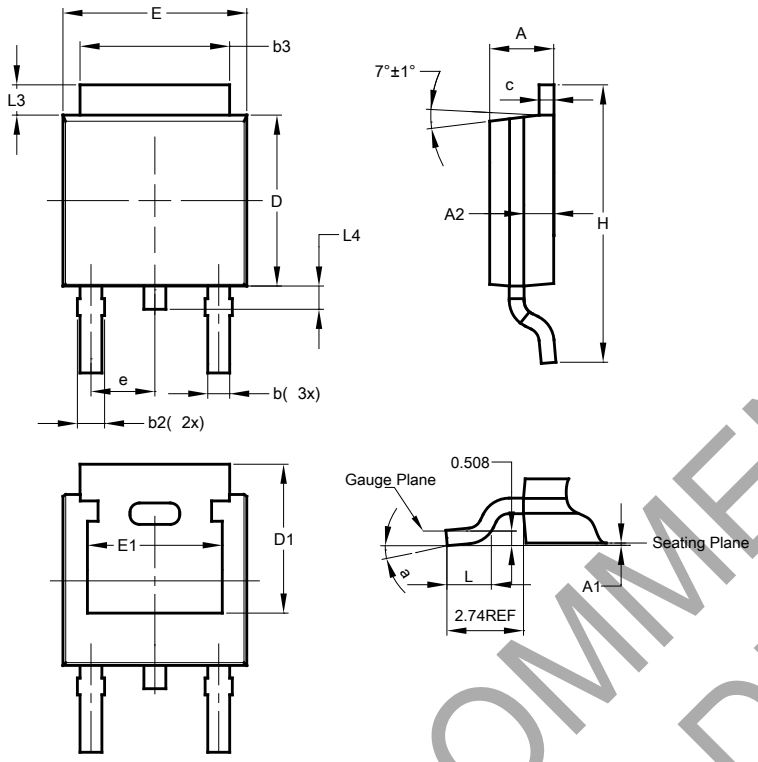
TO252 (DPAK)



TO252 (DPAK)			
Dim	**Min**	**Max**	**Typ**
A	2.19	2.39	2.29
A1	0.00	0.13	0.08
A2	0.97	1.17	1.07
b	0.64	0.88	0.783
b2	0.76	1.14	0.95
b3	5.21	5.46	5.33
c	0.45	0.58	0.531
D	6.00	6.20	6.10
D1	5.21	—	—
e	—	—	2.286
E	6.45	6.70	6.58
E1	4.32	—	—
H	9.40	10.41	9.91
L	1.40	1.78	1.59
L3	0.88	1.27	1.08
L4	0.64	1.02	0.83
a	0°	10°	—
All Dimensions in mm			

Suggested Pad Layout

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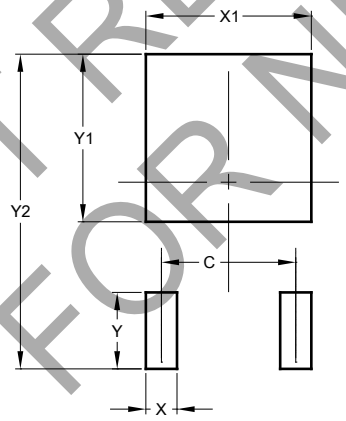
TO252 (DPAK)



Dimensions	Value (in mm)
C	4.572
X	1.060
X1	5.632
Y	2.600
Y1	5.700
Y2	10.700

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