

N-Channel 150 V (D-S) MOSFET

PRODUCT SUMMARY

V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A) ^a	Q_g (Typ.)
150	0.074 at $V_{GS} = 10$ V	25.4	23 nC
	0.077 at $V_{GS} = 8$ V	22.5	

FEATURES

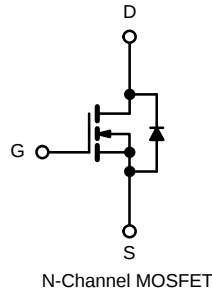
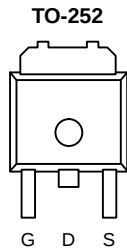
- Halogen-free According to IEC 61249-2-21 Definition
- Extremely Low Q_{gd} for Switching Losses
- 100 % R_g Tested
- 100 % Avalanche Tested
- Compliant to RoHS Directive 2002/95/EC



RoHS
COMPLIANT
HALOGEN
FREE
Available

APPLICATIONS

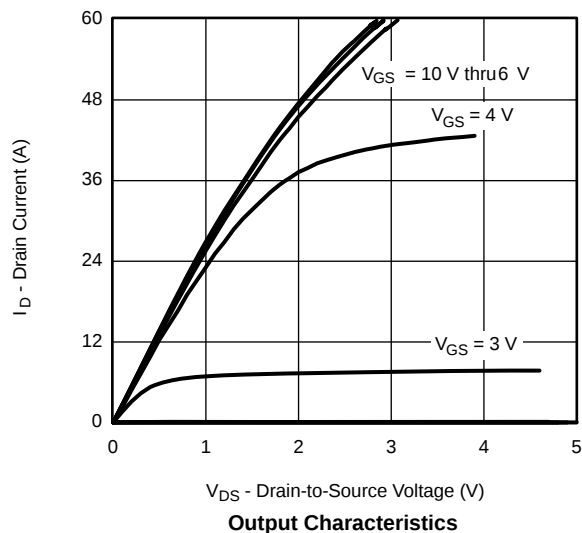
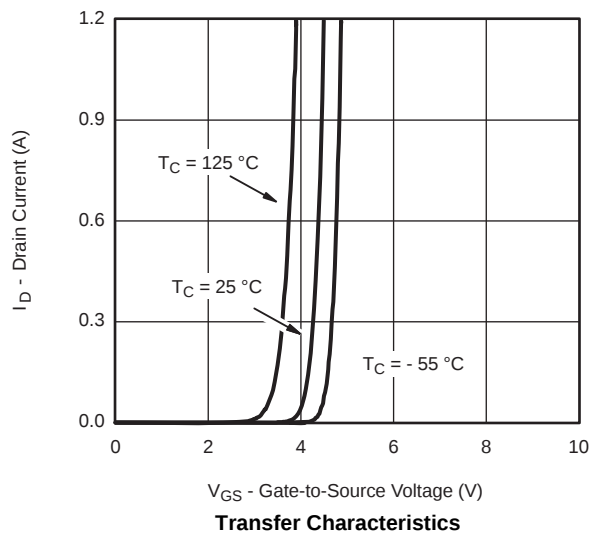
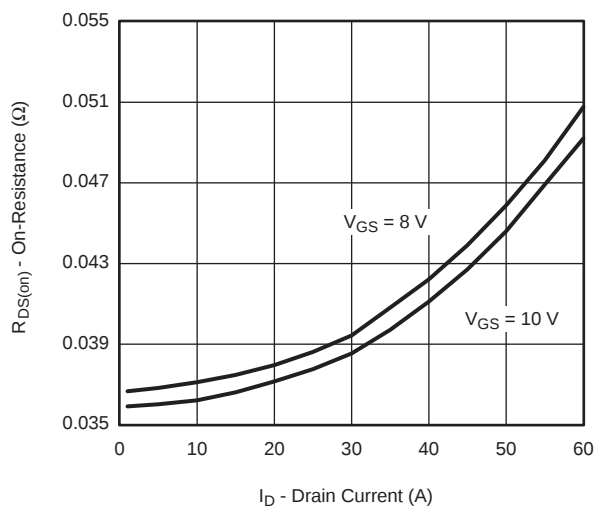
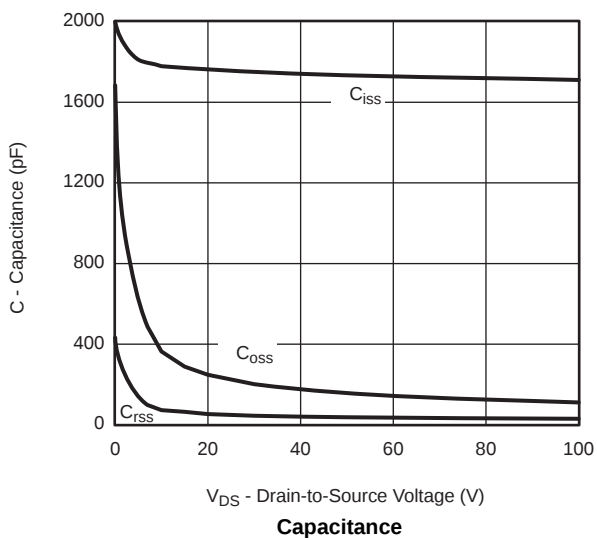
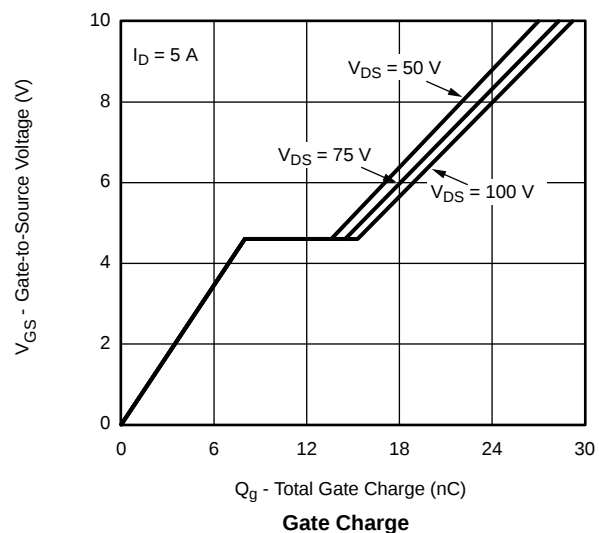
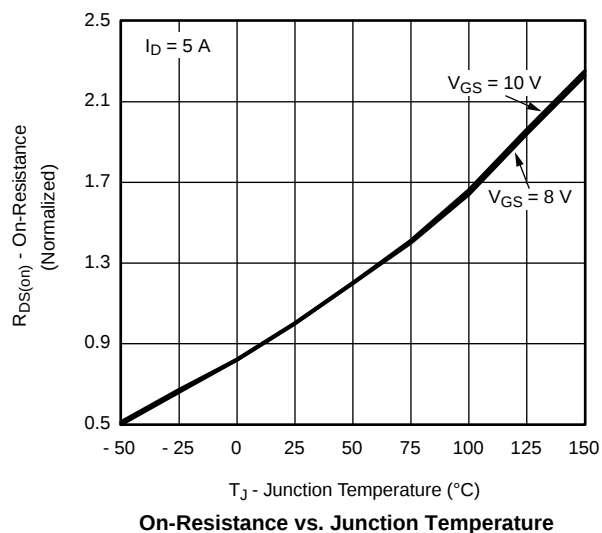
- Primary Side Switch



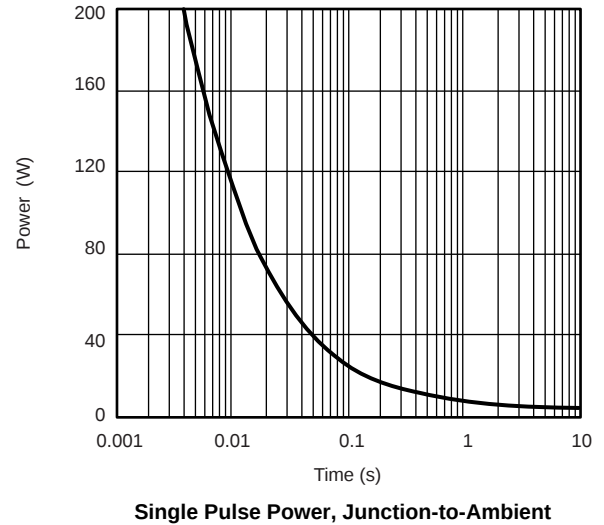
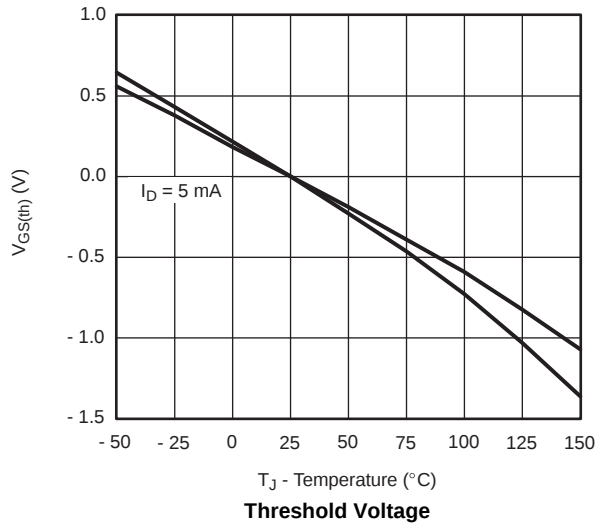
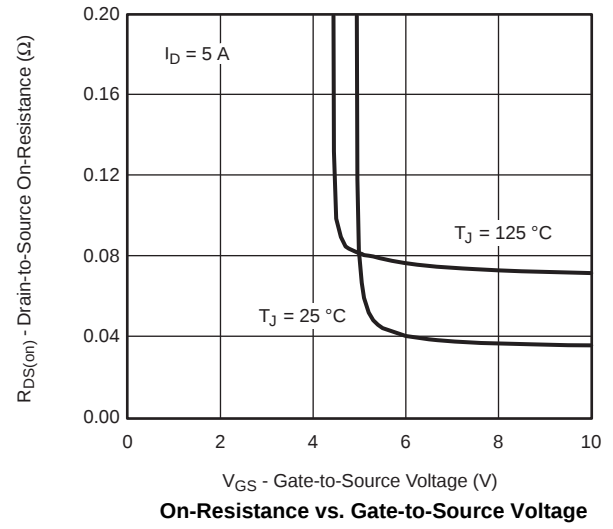
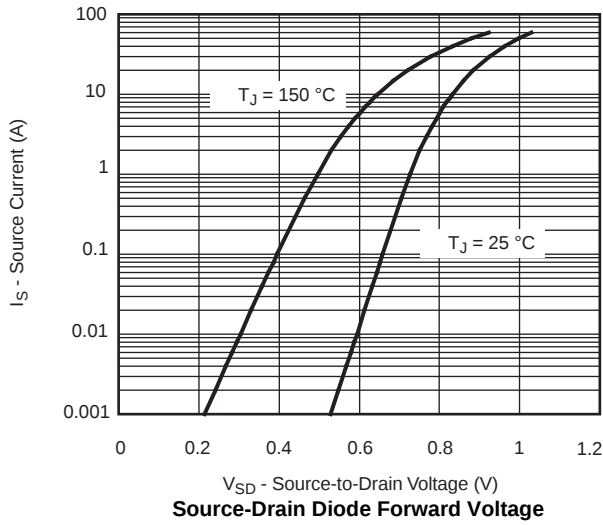
ABSOLUTE MAXIMUM RATINGS ($T_A = 25$ °C, unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current ($T_J = 150$ °C)	$T_C = 25$ °C	25.4	A
	$T_C = 70$ °C	23.1	
	$T_A = 25$ °C	15.5 ^{b, c}	
	$T_A = 70$ °C	14.5 ^{b, c}	
Pulsed Drain Current	I_{DM}	50	A
Continuous Source-Drain Diode Current	$T_C = 25$ °C	4.5	
	$T_A = 25$ °C	2.6 ^{b, c}	mJ
Single Pulse Avalanche Current	I_{AS}	20	
Single Pulse Avalanche Energy	E_{AS}	20	W
Maximum Power Dissipation	$T_C = 25$ °C	5.9	
	$T_C = 70$ °C	3.8	

SPECIFICATIONS ($T_J = 25\text{ }^{\circ}\text{C}$, unless otherwise noted)						
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V_{DS}	$V_{GS} = 0\text{ V}, I_D = 250\text{ }\mu\text{A}$	150			V
V_{DS} Temperature Coefficient	$\Delta V_{DS}/T_J$	$I_D = 250\text{ }\mu\text{A}$		172		mV/ $^{\circ}\text{C}$
$V_{GS(th)}$ Temperature Coefficient	$\Delta V_{GS(th)}/T_J$			- 10		
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	1.5		3.0	V
Gate-Source Leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 150\text{ V}, V_{GS} = 0\text{ V}$			1	μA
		$V_{DS} = 120\text{ V}, V_{GS} = 0\text{ V}, T_J = 55\text{ }^{\circ}\text{C}$			10	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \geq 10\text{ V}, V_{GS} = 10\text{ V}$	30			A
Drain-Source On-State Resistance ^a	$R_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 5\text{ A}$		0.074		Ω
		$V_{GS} = 8\text{ V}, I_D = 5\text{ A}$		0.077		
Forward Transconductance ^a	g_{fs}	$V_{DS} = 15\text{ V}, I_D = 5\text{ A}$		23		S
Dynamic^b						
Input Capacitance	C_{iss}	$V_{DS} = 50\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$		1735		pF
Output Capacitance	C_{oss}			160		
Reverse Transfer Capacitance	C_{rss}			37		
Total Gate Charge	Q_g					

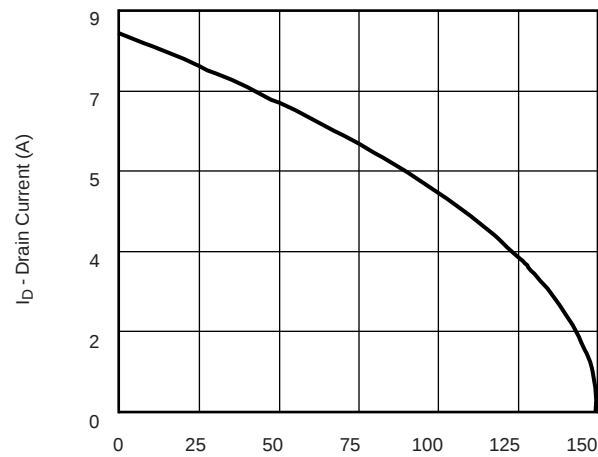
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

Output Characteristics

Transfer Characteristics

On-Resistance vs. Drain Current and Gate Voltage

Capacitance

Gate Charge


TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

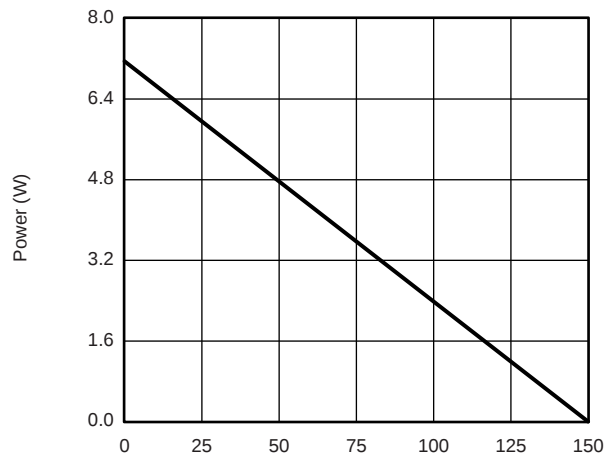


* $V_{GS} >$ minimum V_{GS} at which $R_{DS(on)}$ is specified

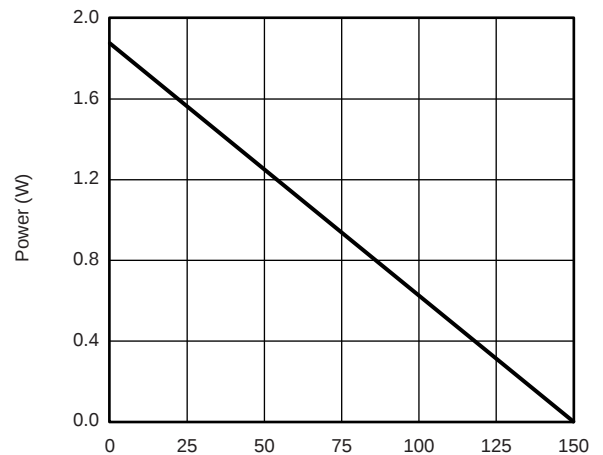
Safe Operating Area, Junction-to-Ambient

TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)


T_C - Case Temperature (°C)
Current Derating*

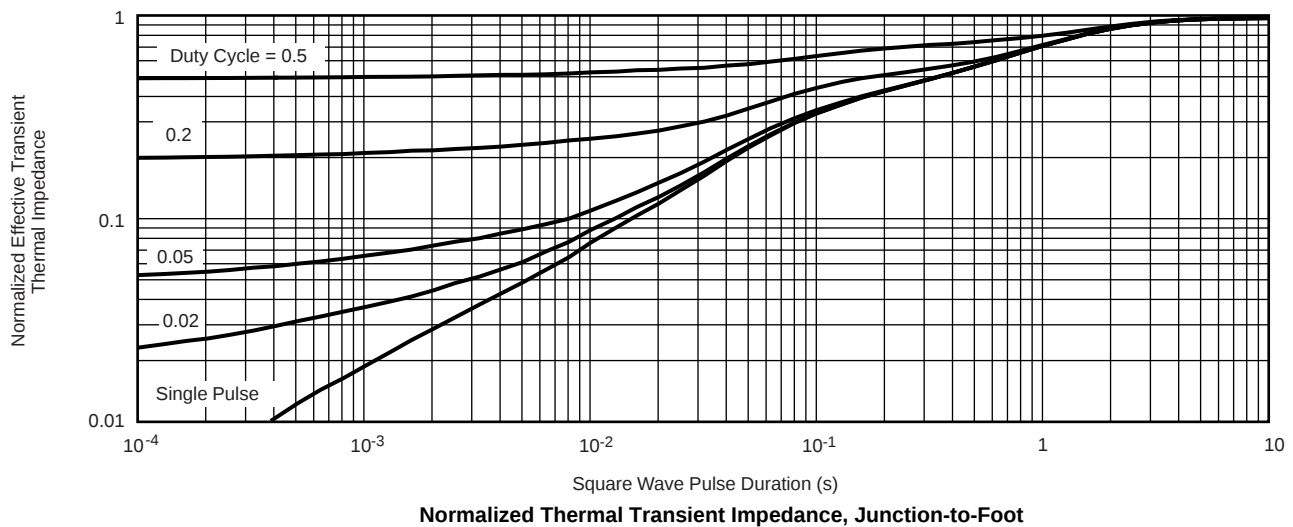
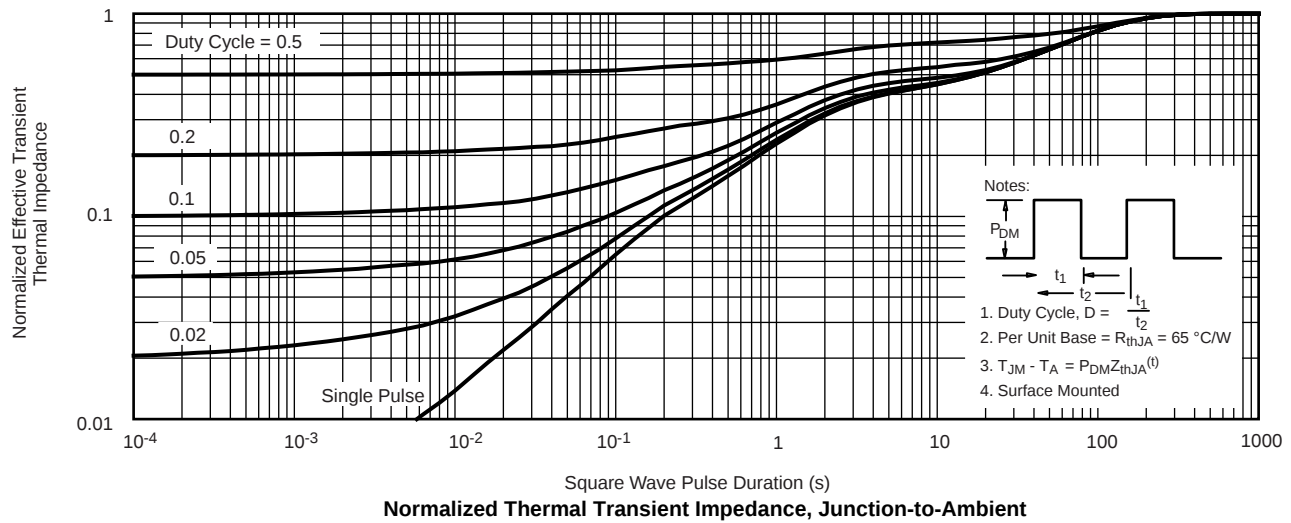


T_C - Case Temperature (°C)
Power, Junction-to-Case

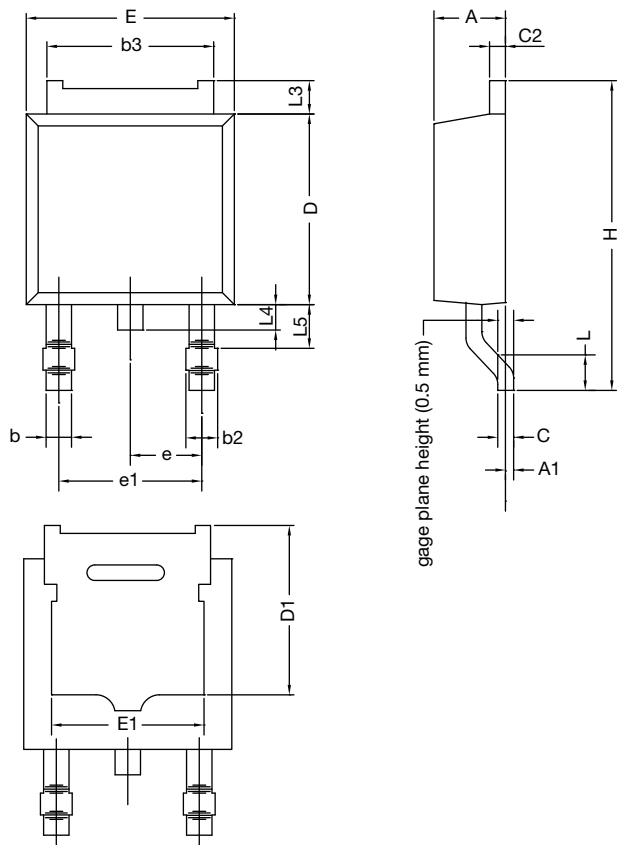


T_A - Ambient Temperature (°C)
Power, Junction-to-Ambient

* The power dissipation P_D is based on $T_{J(max)} = 150$ °C, using junction-to-case thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package limit.

TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)


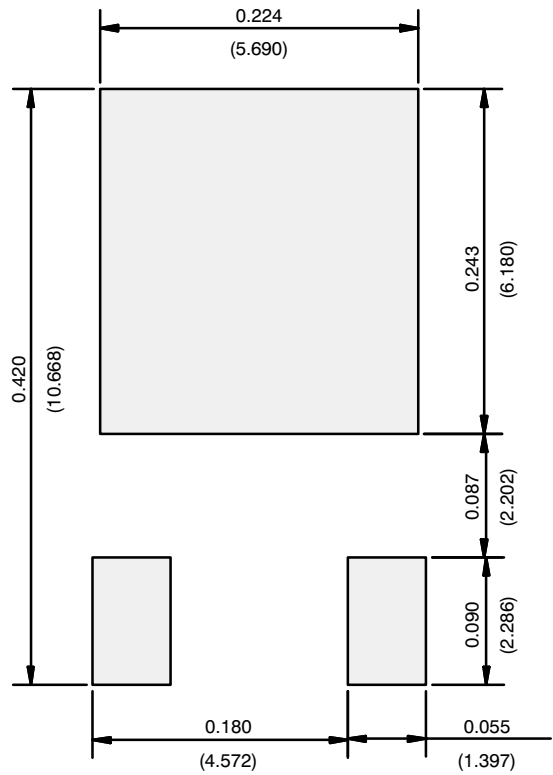
TO-252AA CASE OUTLINE



DIM.	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	2.18	2.38	0.086	0.094
A1	-	0.127	-	0.005
b	0.64	0.88	0.025	0.035
b2	0.76	1.14	0.030	0.045
b3	4.95	5.46	0.195	0.215
C	0.46	0.61	0.018	0.024
C2	0.46	0.89	0.018	0.035
D	5.97	6.22	0.235	0.245
D1	5.21	-	0.205	-
E	6.35	6.73	0.250	0.265
E1	4.32	-	0.170	-
H	9.40	10.41	0.370	0.410
e	2.28 BSC		0.090 BSC	
e1	4.56 BSC		0.180 BSC	
L	1.40	1.78	0.055	0.070
L3	0.89	1.27	0.035	0.050
L4	-	1.02	-	0.040
L5	1.14	1.52	0.045	0.060
ECN: X12-0247-Rev. M, 24-Dec-12				
DWG: 5347				

- Note**
- Dimension L3 is for reference only.

RECOMMENDED MINIMUM PADS FOR DPAK (TO-252)



Recommended Minimum Pads
Dimensions in Inches/(mm)

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