

Product Summary

BV_{DSS}	$R_{DS(ON)} \text{ Max}$	$I_D \text{ Max}$ $T_C = +25^\circ\text{C}$
80V	7.8m Ω @ $V_{GS} = 10\text{V}$	90A
	11m Ω @ $V_{GS} = 6\text{V}$	76A

Description

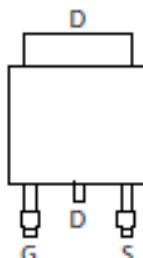
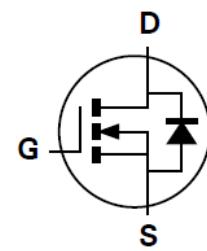
This new generation MOSFET features low on-resistance and fast switching, making it ideal for high-efficiency power management applications.

Applications

- Power Management Functions
- DC-DC Converters
- Backlighting



Top View

Pin Out
Top View

Equivalent Circuit

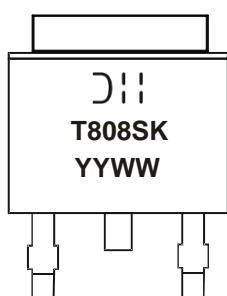
Ordering Information (Note 4)

Part Number	Case	Packaging
DMT8008SK3-13	TO252 (DPAK)	2,500/Tape & Reel

Notes:

- EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
- See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
- Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



DII = Manufacturer's Marking
T808SK = Product Type Marking Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 21 = 2021)
WW = Week Code (01 to 53)

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	80	V
Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current, $V_{GS} = 10\text{V}$	$T_C = +25^\circ\text{C}$	90	A
	$T_C = +70^\circ\text{C}$	72	
Pulsed Drain Current (10 μs Pulse, Duty Cycle = 1%)	I_{DM}	360	A
Maximum Continuous Body Diode Forward Current (Note 6)	I_S	90	A
Pulsed Body Diode Forward Current (10 μs Pulse, Duty Cycle = 1%)	I_{SM}	360	A
Avalanche Current, $L = 0.1\text{mH}$	I_{AS}	40	A
Avalanche Energy, $L = 0.1\text{mH}$	E_{AS}	80	mJ

Thermal Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P_D	1.7	W
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	75	$^\circ\text{C/W}$
Total Power Dissipation (Note 6)	P_D	3	W
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	45	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.1	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV_{DSS}	80	—	—	V	$V_{GS} = 0\text{V}, I_D = 1\text{mA}$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1	μA	$V_{DS} = 64\text{V}, V_{GS} = 0\text{V}$
Gate-Source Leakage	I_{GSS}	—	—	± 100	nA	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(\text{th})}$	2	—	4	V	$V_{DS} = V_{GS}, I_D = 1\text{mA}$
Static Drain-Source On-Resistance	$R_{DS(\text{on})}$	—	6	7.8	$\text{m}\Omega$	$V_{GS} = 10\text{V}, I_D = 14\text{A}$
		—	8.3	11		$V_{GS} = 6\text{V}, I_D = 12\text{A}$
Diode Forward Voltage	V_{SD}	—	0.8	1.2	V	$V_{GS} = 0\text{V}, I_S = 14\text{A}$
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	—	1950	—	pF	$V_{DS} = 40\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$
Output Capacitance	C_{oss}	—	826	—		
Reverse Transfer Capacitance	C_{rss}	—	56	—	nC	$V_{DS} = 0\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$
Gate Resistance	R_g	—	1.7	—		
Total Gate Charge ($V_{GS} = 6\text{V}$)	Q_g	—	23	—		
Total Gate Charge ($V_{GS} = 10\text{V}$)	Q_g	—	34	—		
Gate-Source Charge	Q_{gs}	—	6	—		
Gate-Drain Charge	Q_{gd}	—	12	—	ns	$V_{DD} = 40\text{V}, V_{GS} = 10\text{V}, I_D = 14\text{A}, R_G = 6\Omega$
Turn-On Delay Time	$t_{D(\text{on})}$	—	8	—		
Turn-On Rise Time	t_R	—	15	—		
Turn-Off Delay Time	$t_{D(\text{off})}$	—	29	—		
Turn-Off Fall Time	t_F	—	21	—		
Body Diode Reverse Recovery Time	t_{RR}	—	43	—	ns	$I_S = 14\text{A}, \text{di}/\text{dt} = 100\text{A}/\mu\text{s}$
Body Diode Reverse Recovery Charge	Q_{RR}	—	49	—		

Notes: 5. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

6. Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate.

7. Short duration pulse test used to minimize self-heating effect.

8. Guaranteed by design. Not subject to product testing.

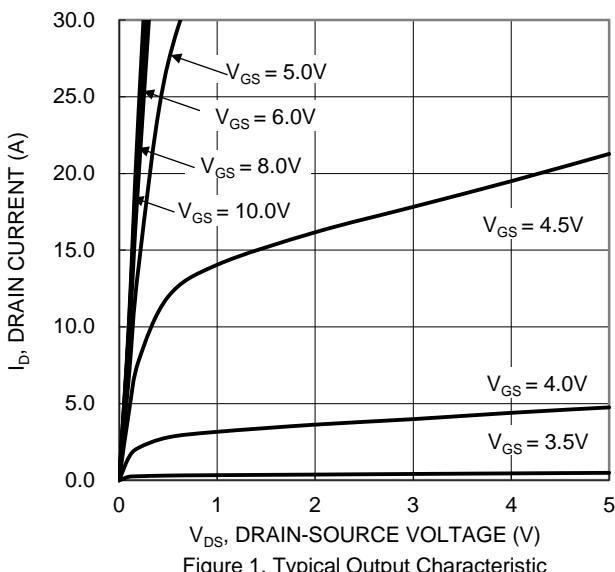


Figure 1. Typical Output Characteristic

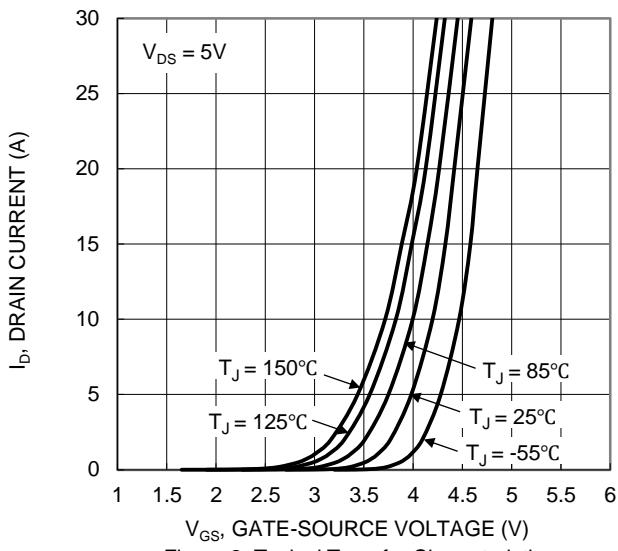


Figure 2. Typical Transfer Characteristic

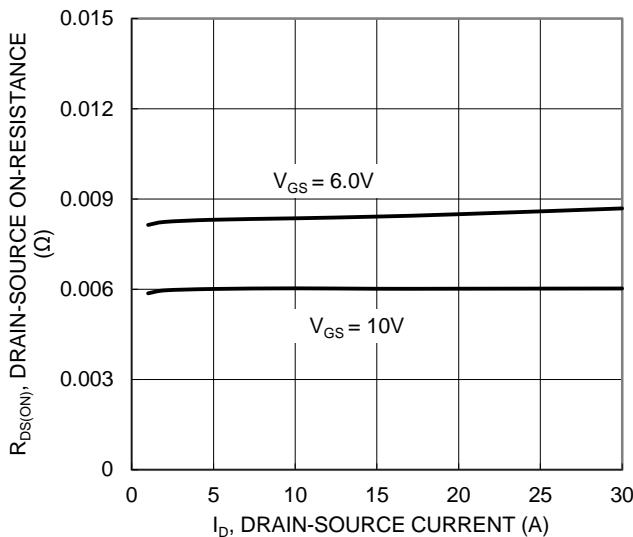


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

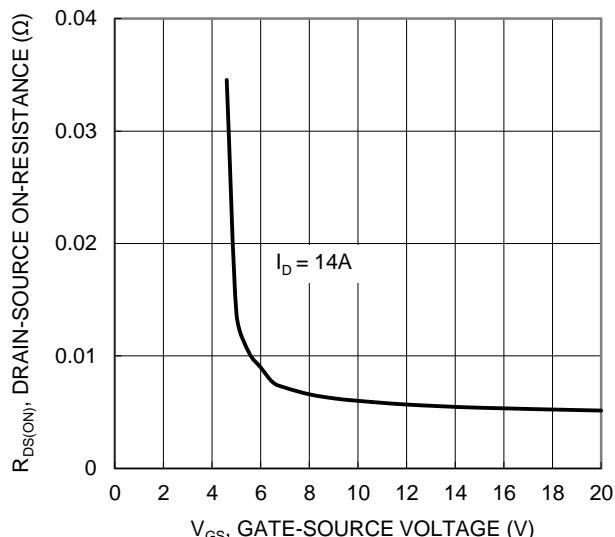


Figure 4. Typical Transfer Characteristic

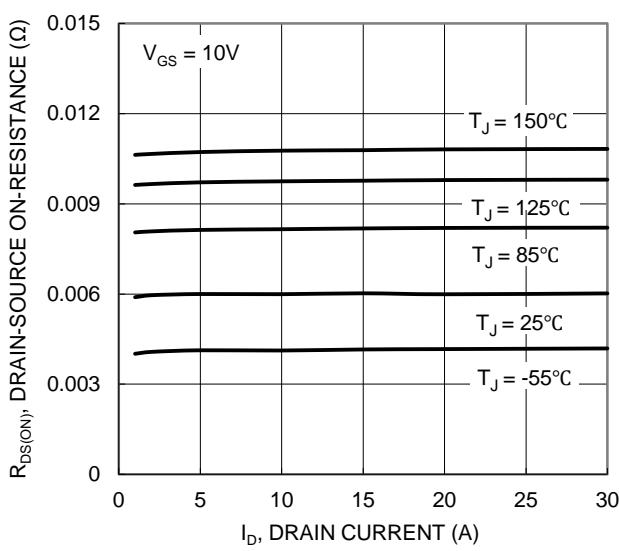


Figure 5. Typical On-Resistance vs. Drain Current and Temperature

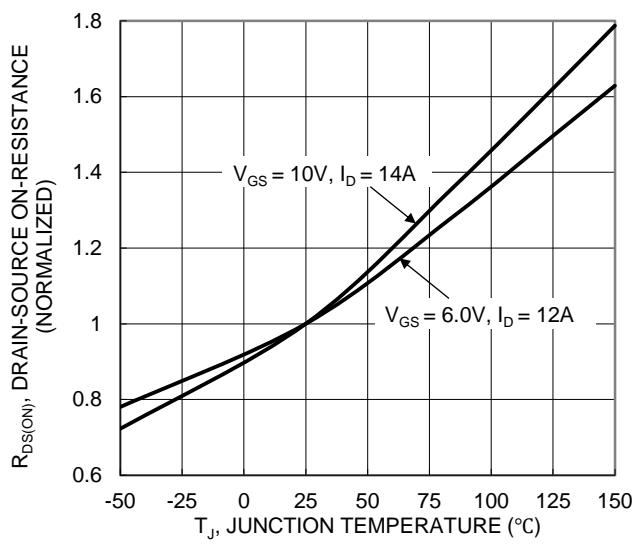
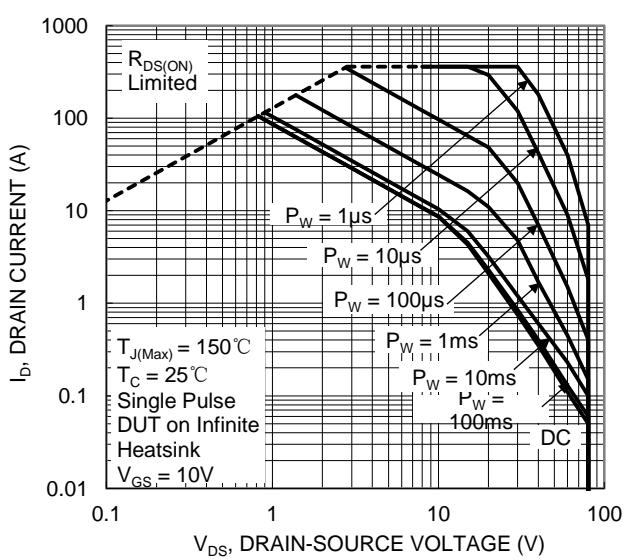
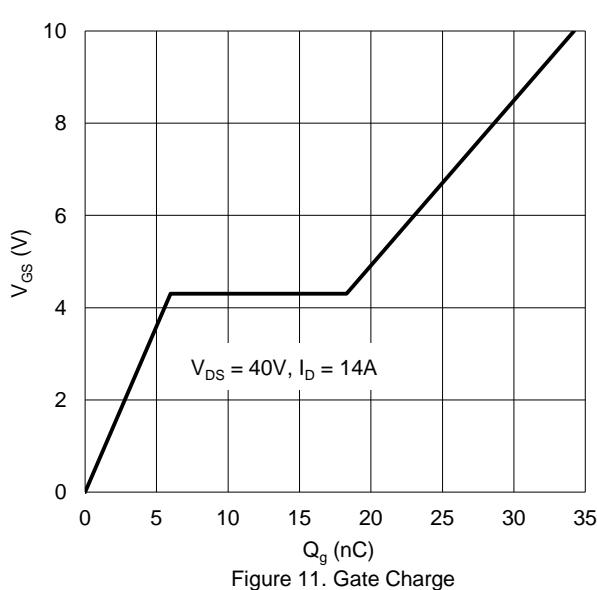
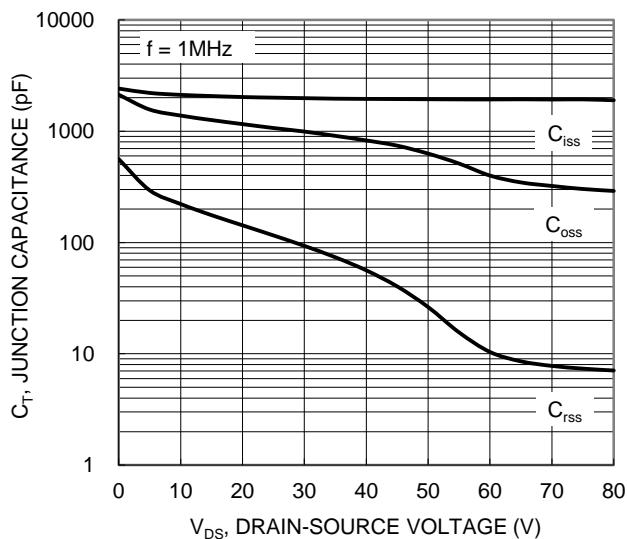
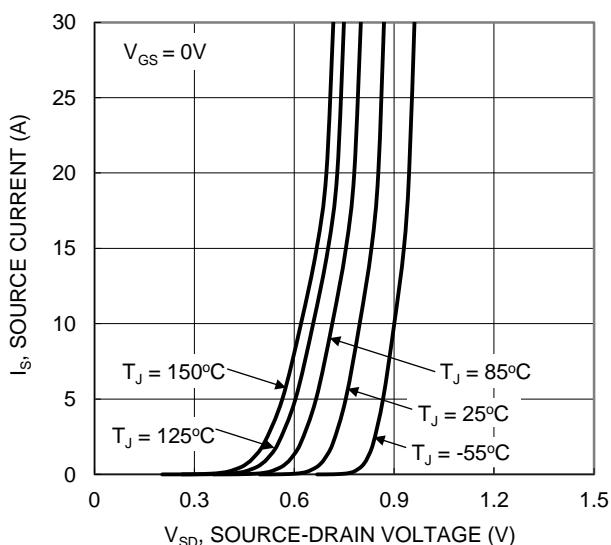
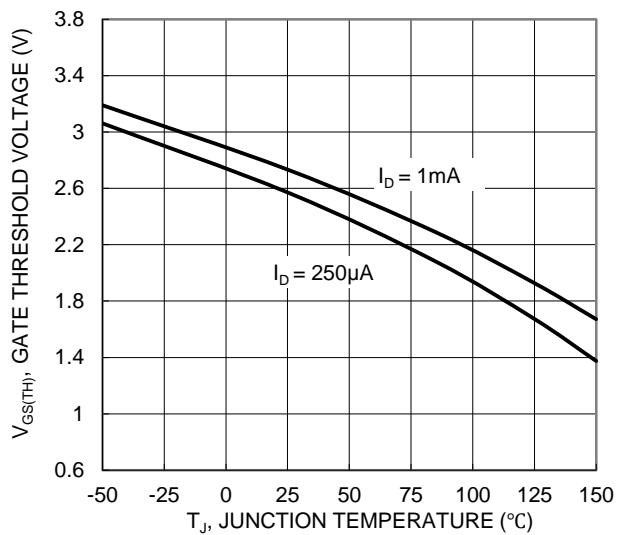
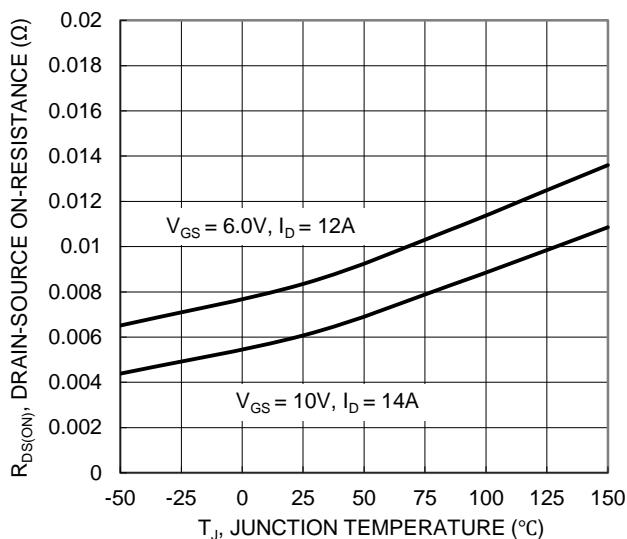


Figure 6. On-Resistance Variation with Junction Temperature



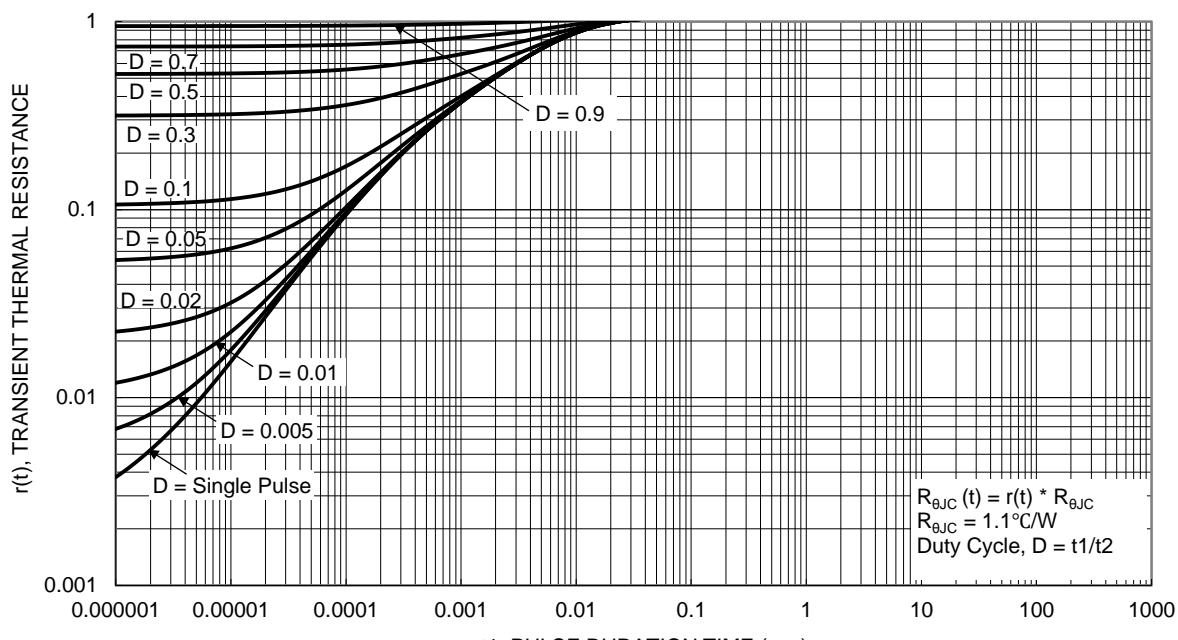
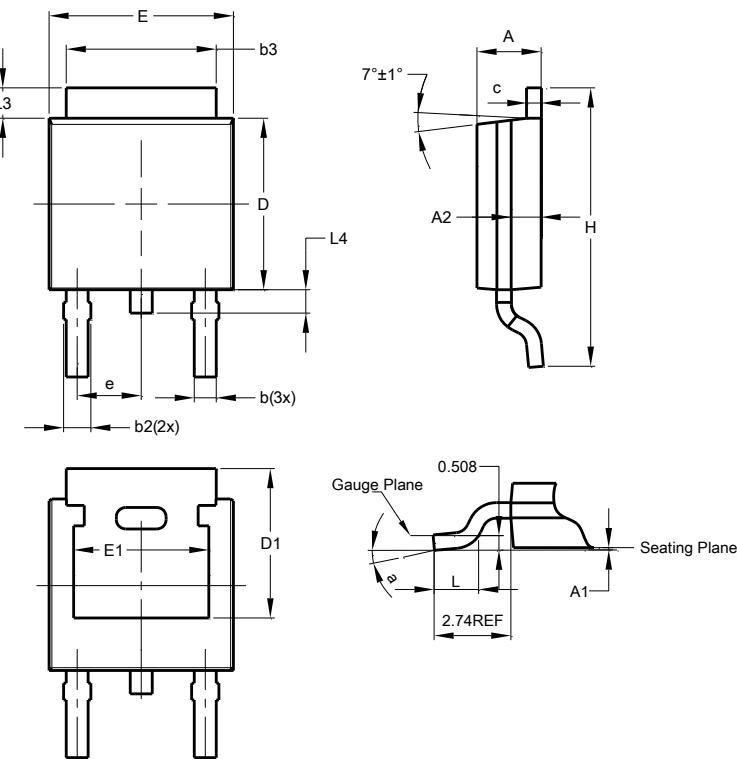


Figure 13. Transient Thermal Resistance

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

TO252 (DPAK)



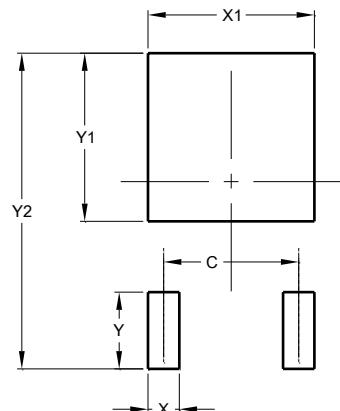
TO252 (DPAK)			
Dim	Min	Max	Typ
A	2.19	2.39	2.29
A1	0.00	0.13	0.08
A2	0.97	1.17	1.07
b	0.64	0.88	0.783
b2	0.76	1.14	0.95
b3	5.21	5.46	5.33
c	0.45	0.58	0.531
D	6.00	6.20	6.10
D1	5.21	—	—
e	—	—	2.286
E	6.45	6.70	6.58
E1	4.32	—	—
H	9.40	10.41	9.91
L	1.40	1.78	1.59
L3	0.88	1.27	1.08
L4	0.64	1.02	0.83
a	0°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

All Dimensions in mm

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

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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