SPN4392
N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN4392 is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density , DMOS trench technology.

This high density process is especially tailored to minimize on-state resistance.

These devices are particularly suited for low voltage application , notebook computer power management and other battery powered circuits where high-side switching .

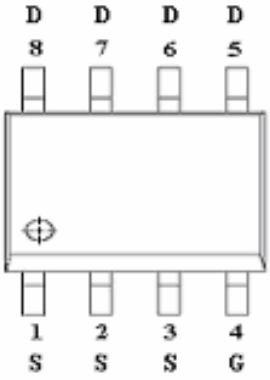
FEATURES

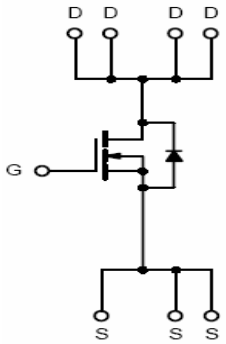
- 30V/22A,$R_{DS(ON)}$= 8mΩ@V_{GS}=10V
- 30V/18A,$R_{DS(ON)}$= 12mΩ@V_{GS}=4.5V
- Super high density cell design for extremely low RDS (ON)
- Exceptional on-resistance and maximum DC current capability
- SOP – 8P package design

APPLICATIONS

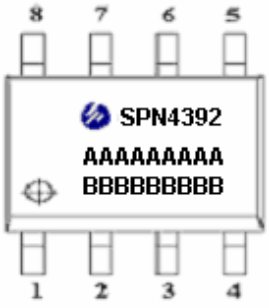
- Power Management in Note book
- Portable Equipment
- Battery Powered System
- High-Side DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

PIN CONFIGURATION(SOP – 8P)





PART MARKING



A : Lot Code
B : Date Code

SPN4392
N-Channel Enhancement Mode MOSFET

PIN DESCRIPTION

Pin	Symbol	Description
1	S	Source
2	S	Source
3	S	Source
4	G	Gate
5	D	Drain
6	D	Drain
7	D	Drain
8	D	Drain

ORDERING INFORMATION

Part Number	Package	Part Marking
SPN4392S8RG	SOP- 8P	SPN4392
SPN4392S8TG	SOP- 8P	SPN4392

※ SPN4392S8RG : 13" Tape Reel ; Pb – Free
※ SPN4392S8TG : Tube ; Pb – Free

ABSOULTE MAXIMUM RATINGS

(T_A=25℃ Unless otherwise noted)

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	30	V
Gate –Source Voltage		V_{GSS}	±20	V
Continuous Drain Current(T_J=150℃)	T_A=25℃	I_D	22	A
	T_A=70℃		18	
Pulsed Drain Current		I_{DM}	50	A
Continuous Source Current(Diode Conduction)		I_S	5.6	A
Power Dissipation	T_A=25℃	P_D	2.5	W
	T_A=70℃		1.6	
Operating Junction Temperature		T_J	-55/150	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	80	℃/W

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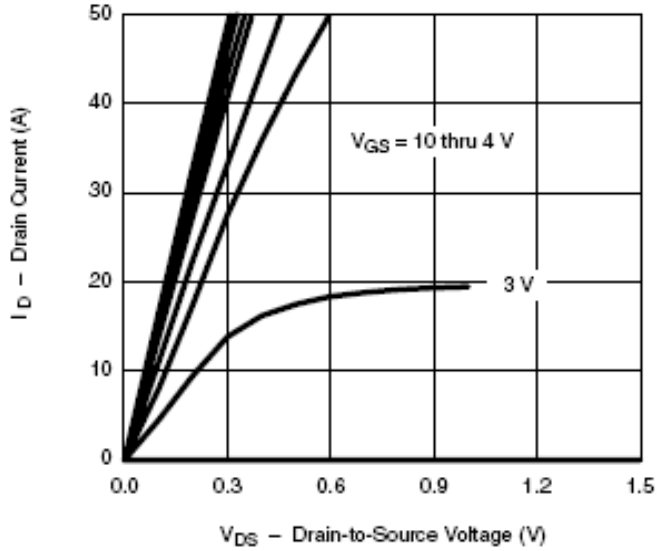
ELECTRICAL CHARACTERISTICS

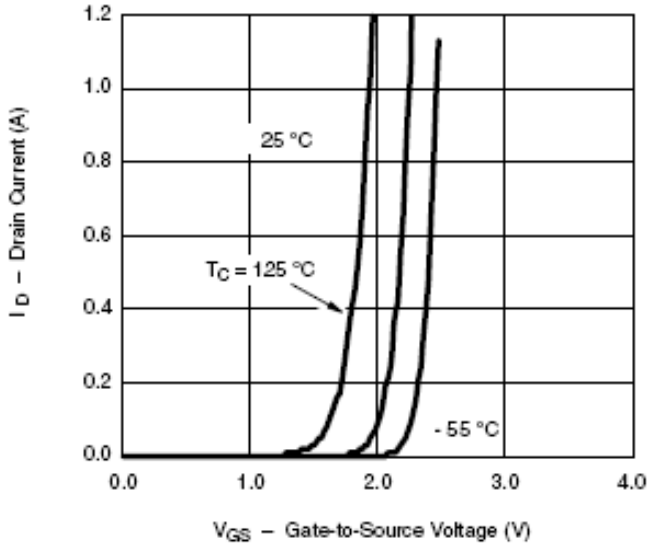
(T_A=25℃ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V , I_D =250uA	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS},I_{DS} =250uA	0.6		1.6	
Gate Leakage Current	I_{GSS}	V_{DS} = 0V,V_{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 30V,V_{GS} =0V			1	uA
		V_{DS} = 30V,V_{GS} =0V, T_J = 125C			100	
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, ID = 13A		0.006	0.008	Ω
		V_{GS} = 4.5V, ID = 10A		0.009	0.012	
Forward Transconductance	gfs	V_{DS} = 15V, I_D =20 A	10			S
Diode Forward Voltage	V_{SD}	I_F = 13 A,V_{GS} = 0V		1.0	1.5	V
Dynamic						
Total Gate Charge	Q_g	V_{DS} = 15V,V_{GS} = 5V, I_D =13 A		12	20	nC
Gate-Source Charge	Q_{gs}			4		
Gate-Drain Charge	Q_{gd}			5		
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, F=1MHz		1500		pF
Output Capacitance	C_{oss}			320		
Reverse Transfer Capacitance	C_{rss}			200		
Turn-On Time	$t_{d(on)}$	(V_{DD} = 15 V,I_D = 13 A, V_{GS}=10V,R_G = 2.5Ω)		8	12	ns
	t_r			10	15	
Turn-Off Time	$t_{d(off)}$			18	30	
	t_f			6	9	

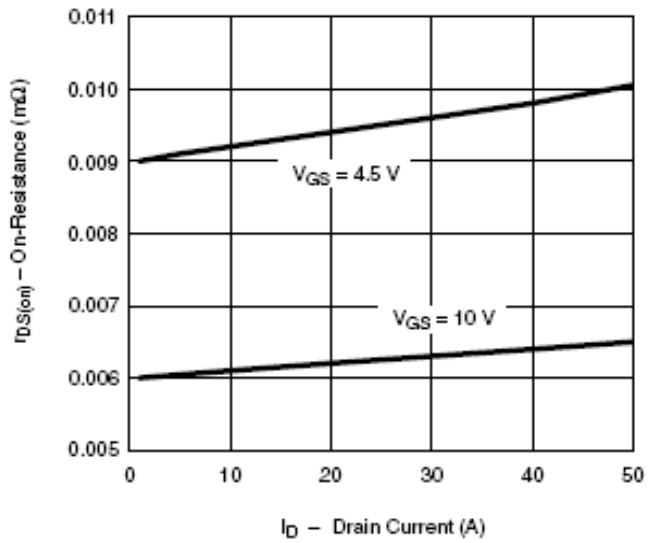
TYPICAL CHARACTERISTICS



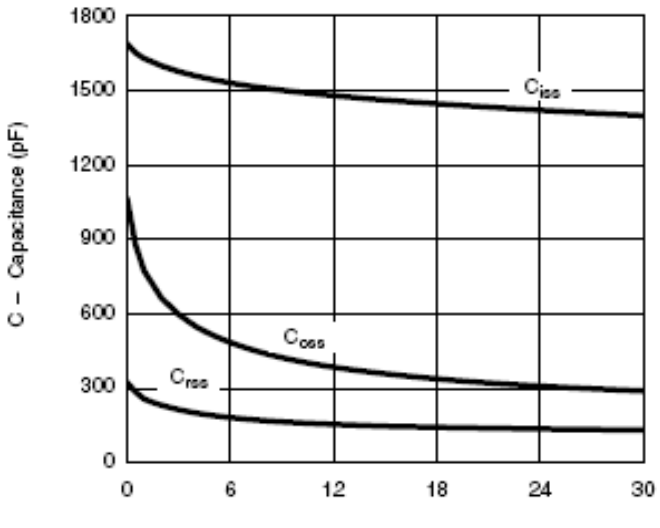
Output Characteristics



Transfer Characteristics

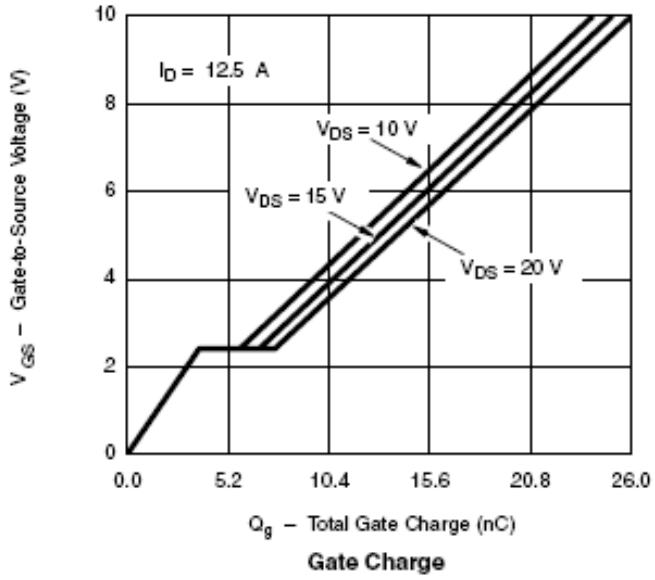


On-Resistance vs. Drain Current and Gate Voltage

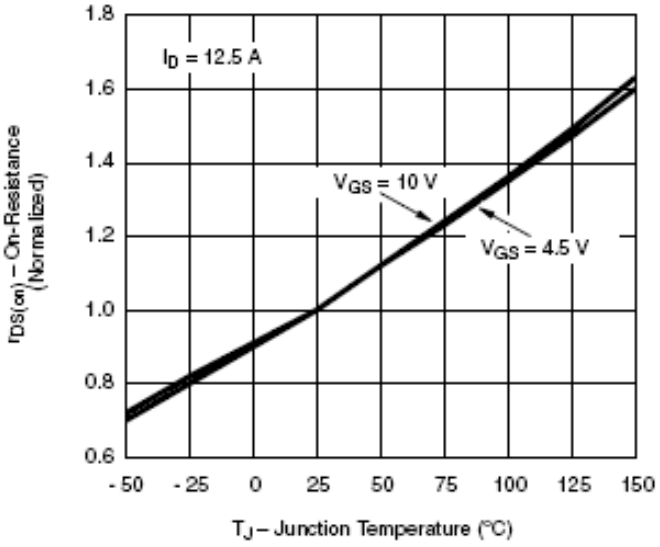


Capacitance

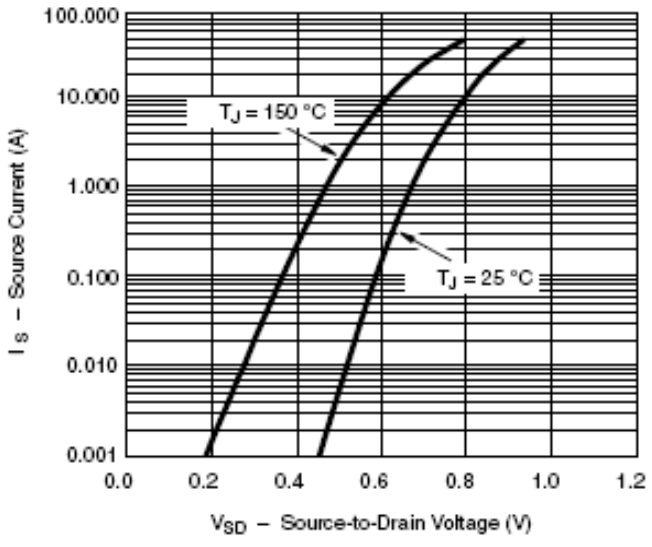
TYPICAL CHARACTERISTICS



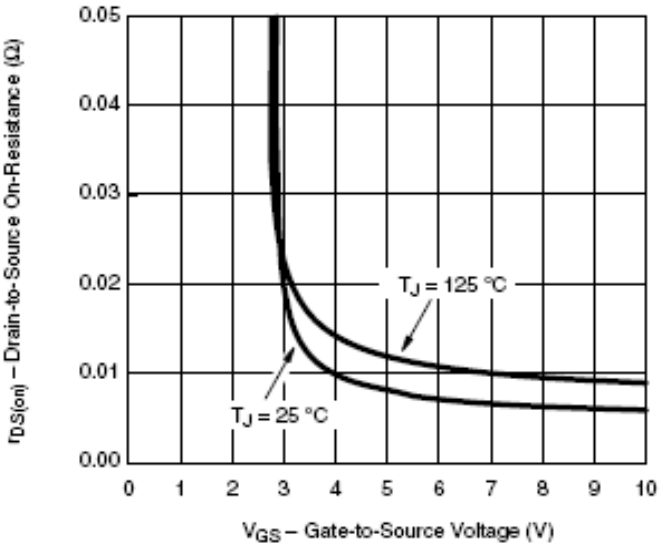
Gate Charge



On-Resistance vs. Junction Temperature

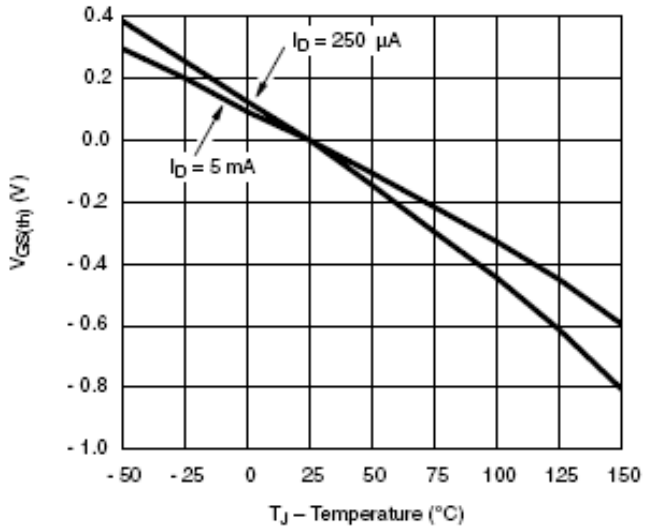


Source-Drain Diode Forward Voltage

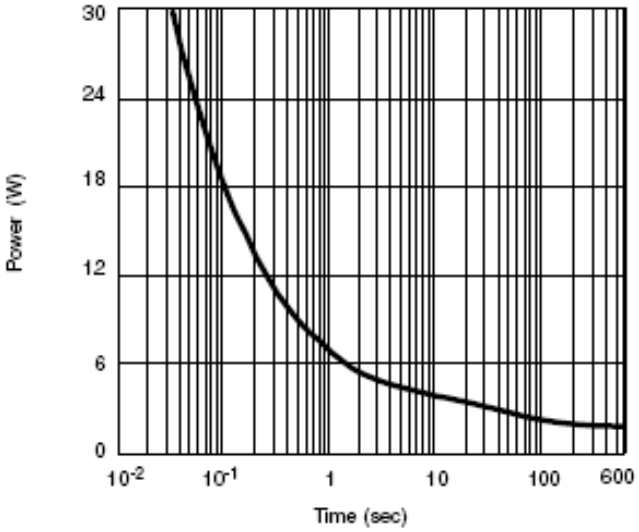


On-Resistance vs. Gate-to-Source Voltage

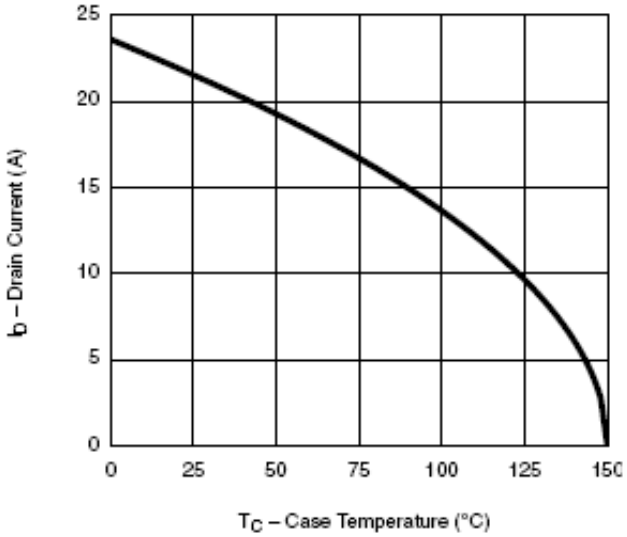
TYPICAL CHARACTERISTICS



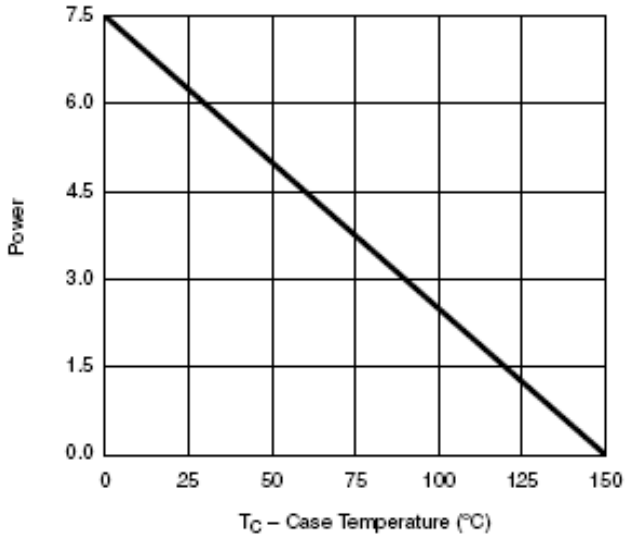
Threshold Voltage



Single Pulse Power

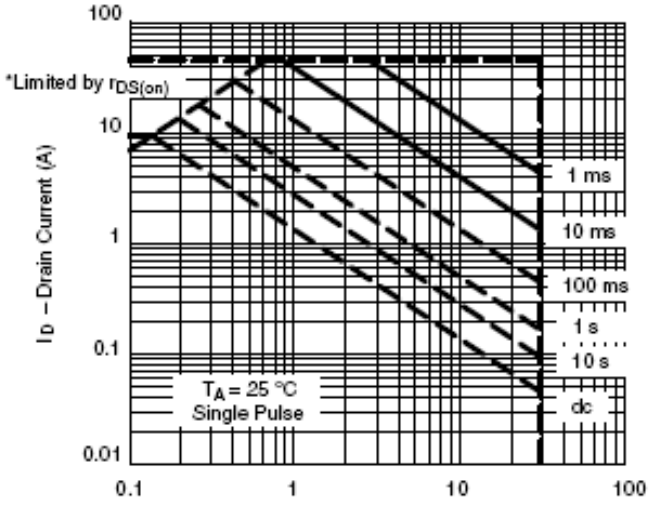


Current Derating*

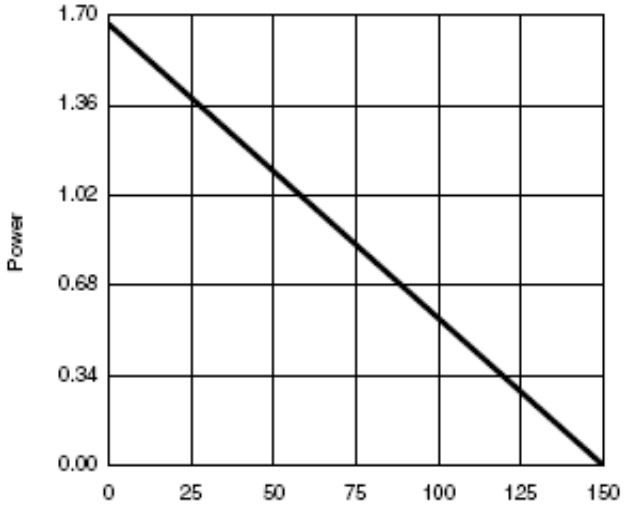


Power Derating, Junction-to-Foot

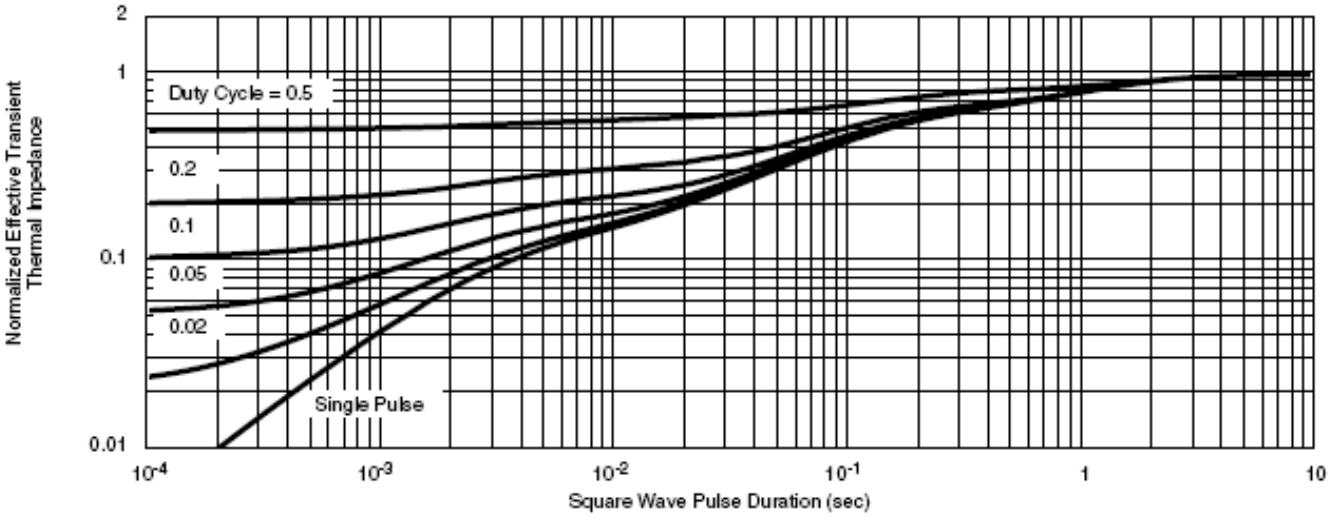
TYPICAL CHARACTERISTICS



Safe Operating Area, Junction-to-Ambient

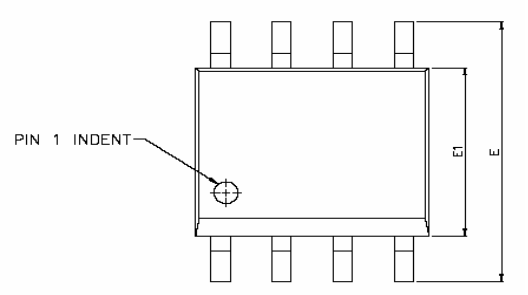


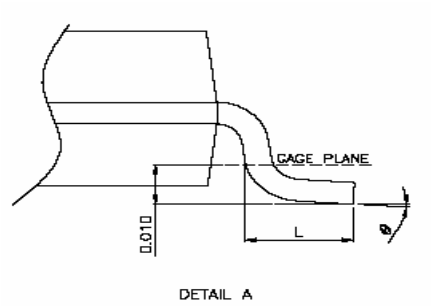
Power, Junction-to-Ambient

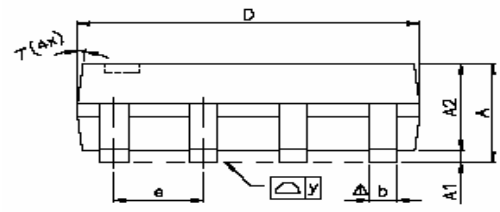


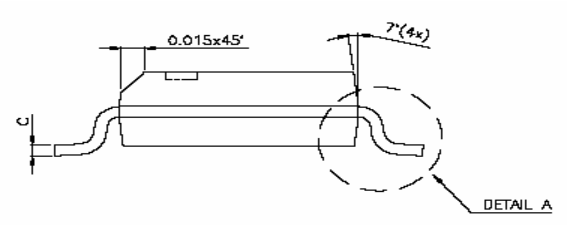
Normalized Thermal Transient Impedance, Junction-to-Foot

SOP- 8 PACKAGE OUTLINE









SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.47	1.60	1.73	0.058	0.063	0.068
A1	0.10	——	0.25	0.004	——	0.010
A2	——	1.45	——	——	0.057	——
b	0.33	0.41	0.51	0.013	0.016	0.020
C	0.19	0.20	0.25	0.0075	0.008	0.0098
D	4.80	4.85	4.95	0.189	0.191	0.195
E	5.80	6.00	6.20	0.228	0.236	0.244
E1	3.80	3.90	4.00	0.150	0.154	0.157
e	——	1.27	——	——	0.050	——
L	0.38	0.71	1.27	0.015	0.028	0.050
2 y	——	——	0.076	——	——	0.003
θ	0°	——	8°	0°	——	8°

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