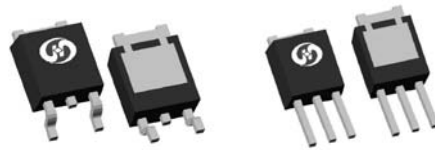


250V N-Ch Power MOSFET

V_{DS}		250	V
$R_{DS(on),typ}$	$V_{GS}=10V$	180	$m\Omega$
$R_{DS(on),typ}$	$V_{GS}=4.5V$	190	$m\Omega$
I_D (Silicon Limited)		8.82	A



Part Number	Package	Marking
HGD2K4N25ML	TO-252	GD2K4N25ML
HGI2K4N25ML	TO-251	GI2K4N25ML

Pir2

Gate

Absolute Maximum Ratings at $T_j=25$ (unless otherwise specified)

Parameter	Symbol	Conditions	Value	Unit
Continuous Drain Current (Silicon Limited) Pir3	I_D	$T_C=25$	12.5	A
		$T_C=100$	8.8	
Drain to Source Voltage	V_{DS}	-	250	V
Gate to Source Voltage	V_{GS}	-	± 20	V
Pulsed Drain Current	I_{DM}	-	18	A
Avalanche Energy, Single Pulse	E_{AS}	$L=0.4mH, T_C=25$	1.8	mJ
Power Dissipation	P_D	$T_C=25$	83	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to 175	

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Case	R_{JC}	1.8	W
Thermal Resistance Junction-Ambient	R_{JA}	65	W

Electrical Characteristics at $T_j=25$ (unless otherwise specified)
Static Characteristics

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	250	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1	2.1	3	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{GS}=0V, V_{DS}=250V, T_j=25$	-	-	1	μA
		$V_{GS}=0V, V_{DS}=250V, T_j=100$	-	-	100	
Gate to Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Drain to Source on Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=3A$	-	180	240	$m\Omega$
	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=2A$	-	190	280	$m\Omega$
Transconductance	g_{fs}	$V_{DS}=5V, I_D=20A$	-	11	-	S
Gate Resistance	R_G	$V_{GS}=0V, V_{DS}$ Open, $f=1MHz$	-	5.3	-	Ω

Dynamic Characteristics

Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=125V, f=1MHz$	-	490	-	pF
Output Capacitance	C_{oss}		-	12	-	
Reverse Transfer Capacitance	C_{rss}		-	4.2	-	
Total Gate Charge	$Q_g (10V)$	$V_{DD}=125V, I_D=3A, V_{GS}=10V$	-	10	-	nC
Total Gate Charge	$Q_g (4.5V)$		-	6	-	
Gate to Source Charge	Q_{gs}		-	1.6	-	
Gate to Drain (Miller) Charge	Q_{gd}		-	3.6	-	
Turn on Delay Time	$t_{d(on)}$	$V_{DD}=125V, I_D=3A, V_{GS}=10V, R_G=10\Omega,$	-	10	-	ns
Rise time	t_r		-	6	-	
Turn off Delay Time	$t_{d(off)}$		-	15	-	
Fall Time	t_f		-	5	-	

Reverse Diode Characteristics

Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_F=20A$	-	0.9	1.2	V
Reverse Recovery Time	t_{rr}	$V_R=125V, I_F=3A, di_F/dt=100A/\mu s$	-	40	-	ns
Reverse Recovery Charge	Q_{rr}		-	82	-	nC

Fig 1. Typical Output Characteristics

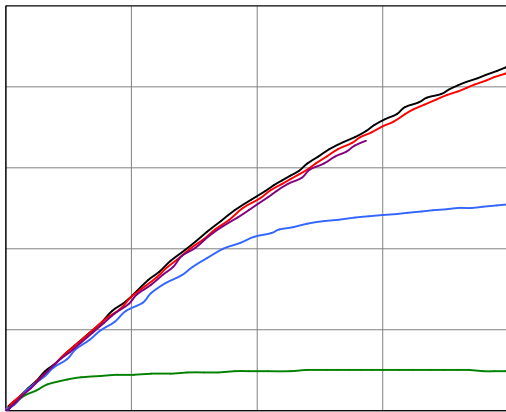


Figure 2. On-Resistance vs. Gate-Source Voltage

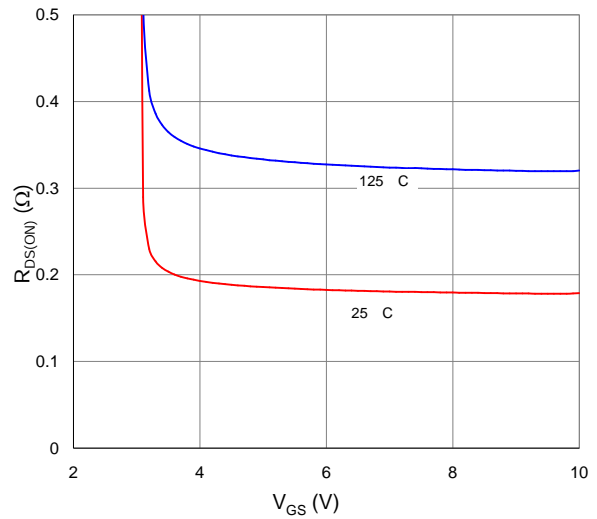


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

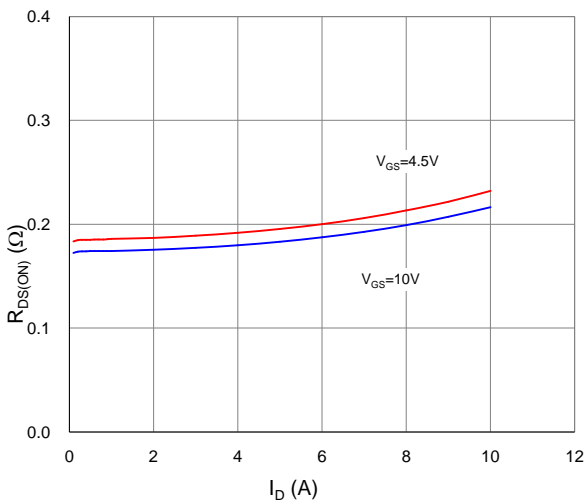


Figure 4. Normalized On-Resistance vs. Junction Temperature

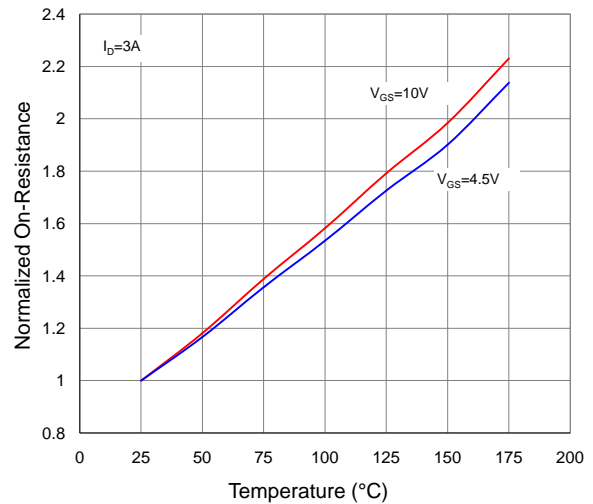


Figure 5. Typical Transfer Characteristics

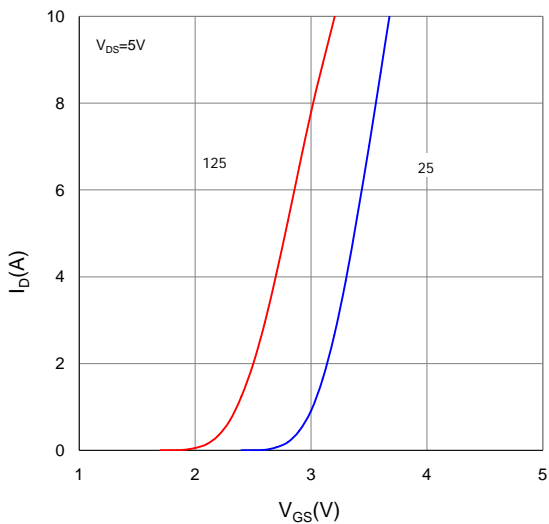


Figure 6. Typical Source-Drain Diode Forward Voltage

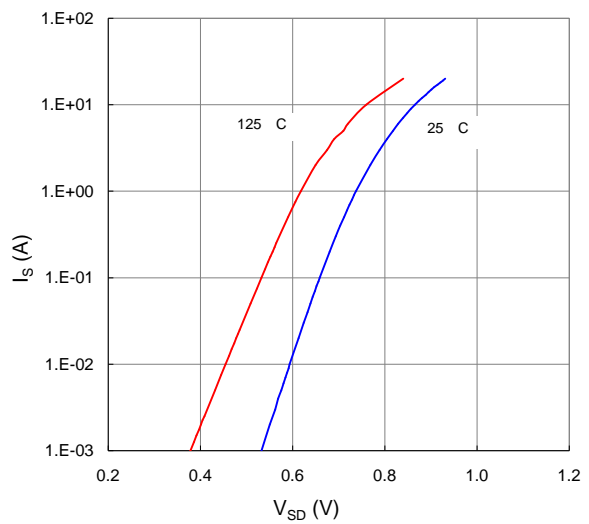


Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage

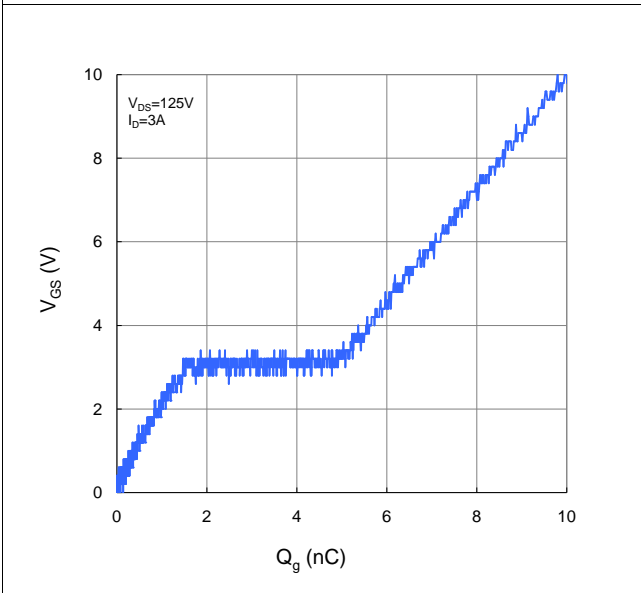


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

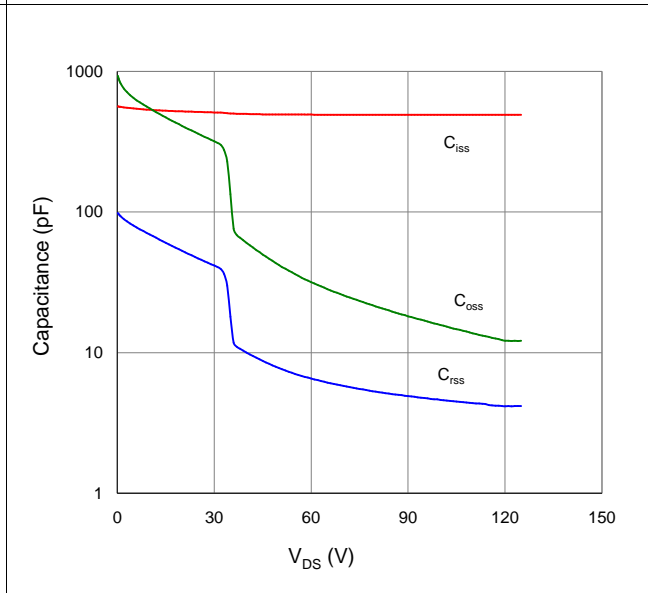


Figure 9. Maximum Safe Operating Area

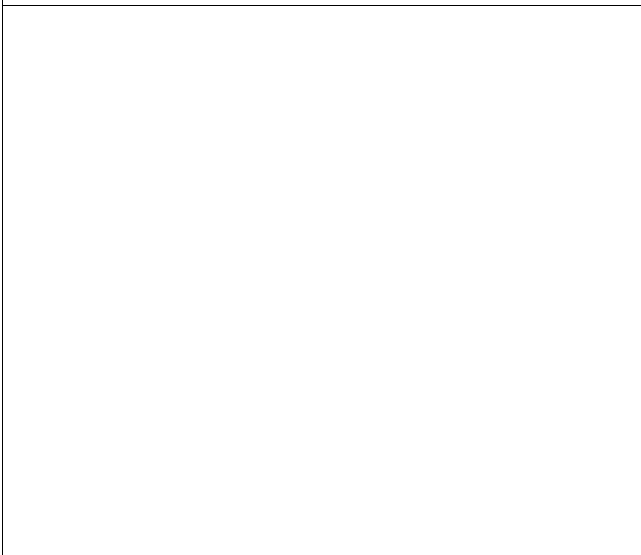


Figure 10. Maximum Drain Current vs. Case Temperature

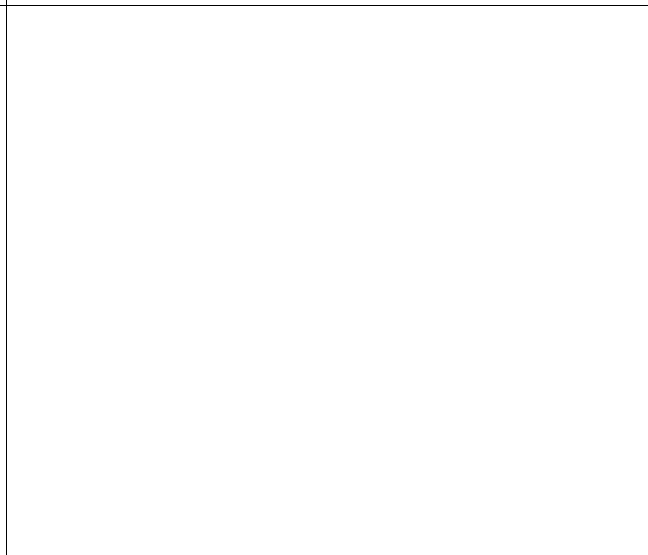
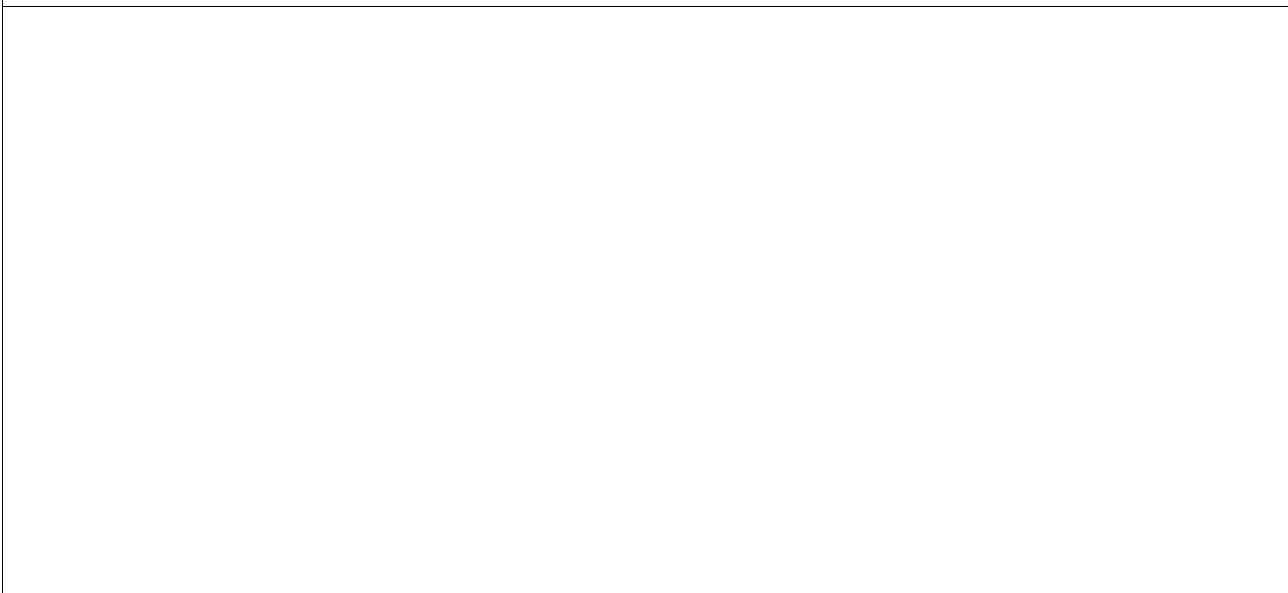
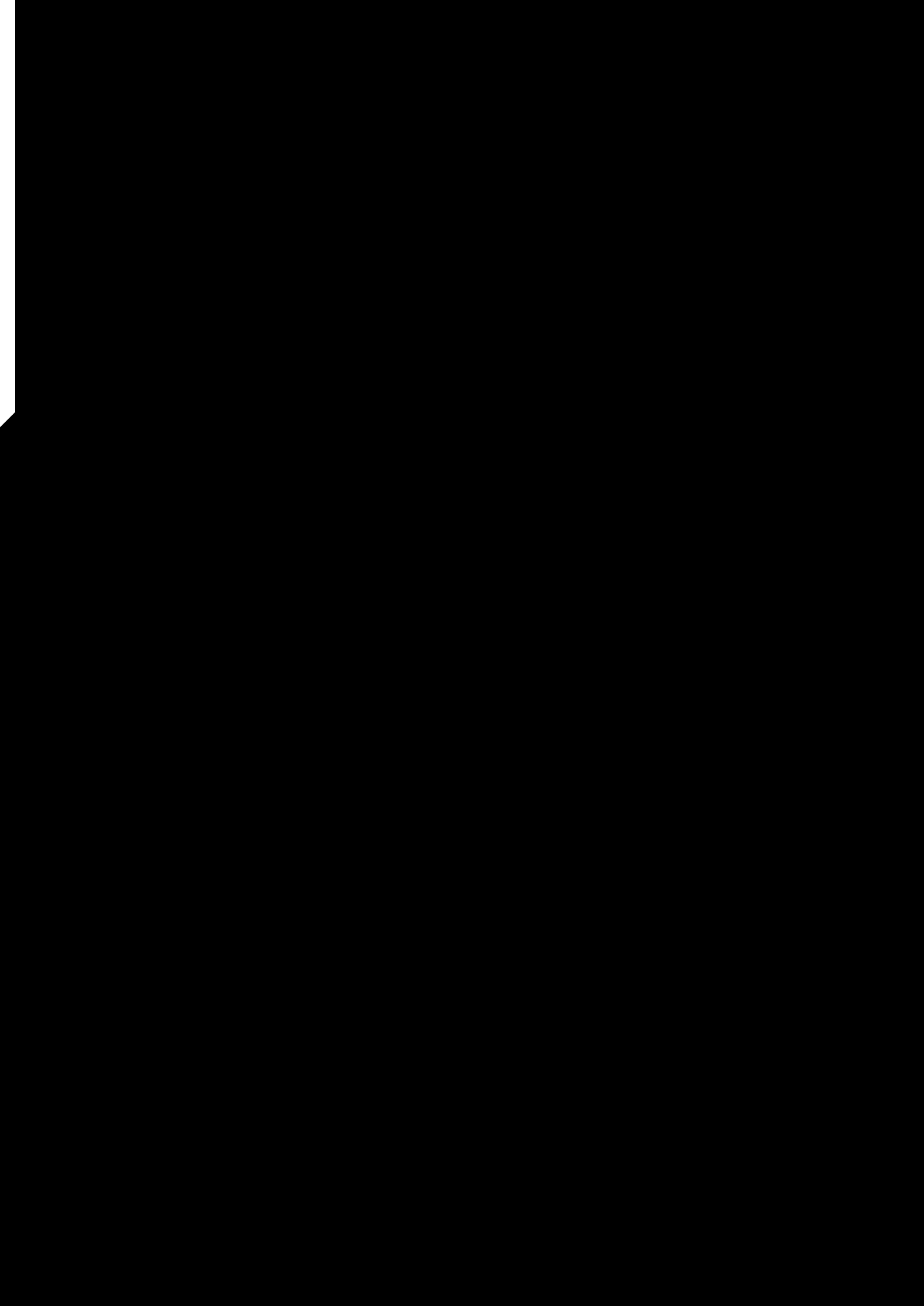
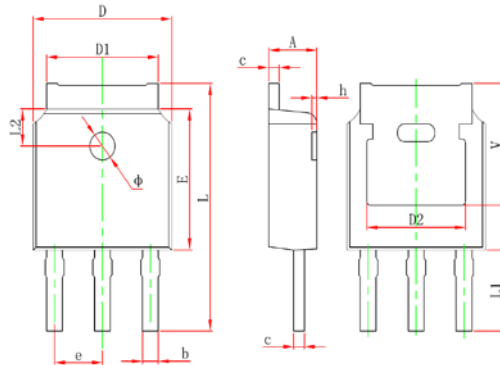


Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Case



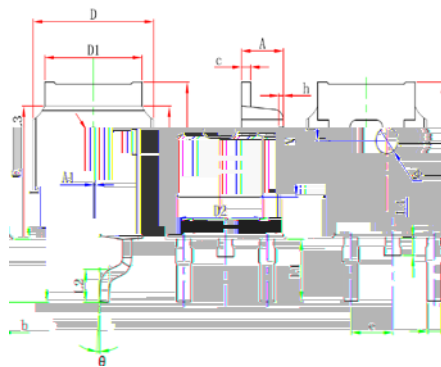


TO-251, 3 leads



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
0.034 \pm 0.005	b	0.660 \pm 0.010	0.860 \pm 0.010	0.026 \pm 0.004
0.023	c	0.460	0.580	0.018
0.264	D	6.500	6.700	0.256

TO-252, 2 leads



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023