SPECIFICATIONS (T_J = 25 °C, unless otherwise noted)						
Parameter	**Symbol**	**Test Conditions**	**Min.**	**Typ.**	**Max.**	**Unit**
Static						
Drain-Source Breakdown Voltage	V_{DS}	V_{GS} = 0 V, I_D = - 250 µA	- 20			V
V_{DS} Temperature Coefficient	$\Delta V_{DS}/T_J$	I_D = - 250 µA		- 11		mV/°C
$V_{GS(th)}$ Temperature Coefficient	$\Delta V_{GS(th)}/T_J$			2.8		
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = - 250 µA	- 0.4		- 1	V
Gate-Source Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ± 8 V			± 2	µA
		V_{DS} = 0 V, V_{GS} = ± 4.5 V			± 0.2	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = - 20 V, V_{GS} = 0 V			- 1	
		V_{DS} = - 20 V, V_{GS} = 0 V, T_J = 55 °C			- 10	
On-State Drain Current[a]	$I_{D(on)}$	$V_{DS} \leq$ - 5 V, V_{GS} = - 4.5 V	- 10			A
Drain-Source On-State Resistance[a]	$R_{DS(on)}$	V_{GS} = - 4.5 V, I_D = - 10 A		0.0081	0.0098	Ω
		V_{GS} = - 3.7 V, I_D = - 5 A		0.0094	0.0114	
		V_{GS} = - 2.5 V, I_D = - 5 A		0.0116	0.0143	
		V_{GS} = - 1.8 V, I_D = - 2 A		0.0200	0.0250	
Forward Transconductance[a]	g_{fs}	V_{GS} = - 10 V, I_D = - 10 A		47		S
Dynamic[b]						
Input Capacitance	C_{iss}	V_{DS} = - 10 V, V_{GS} = 0 V, f = 1 MHz		4300		pF
Output Capacitance	C_{oss}			445		
Reverse Transfer Capacitance	C_{rss}			400		
Total Gate Charge	Q_g	V_{DS} = - 10 V, V_{GS} = - 8 V, I_D = - 14 A		80	120	nC
		V_{DS} = - 10 V, V_{GS} = - 4.5 V, I_D = - 14 A		43	65	
Gate-Source Charge	Q_{gs}			7		
Gate-Drain Charge	Q_{gd}			11.4		
Gate Resistance	R_g	f = 1 MHz	0.6	3.3	6.6	Ω
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = - 10 V, R_L = 1 Ω $I_D \cong$ - 10 A, V_{GEN} = - 4.5 V, R_g = 1 Ω		30	60	ns
Rise Time	t_r			45	90	
Turn-Off Delay Time	$t_{d(off)}$			75	150	
Fall Time	t_f			25	50	
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = - 10 V, R_L = 1 Ω $I_D \cong$ - 10 A, V_{GEN} = - 8 V, R_g = 1 Ω		12	25	
Rise Time	t_r			5	10	
Turn-Off Delay Time	$t_{d(off)}$			80	160	
Fall Time	t_f			20	40	
Drain-Source Body Diode Characteristics						
Continuous Source-Drain Diode Current	I_S	T_C = 25 °C			- 25	A
Pulse Diode Forward Current	I_{SM}				- 70	
Body Diode Voltage	V_{SD}	I_S = - 10 A, V_{GS} = 0 V		- 0.8	- 1.2	V
Body Diode Reverse Recovery Time	t_{rr}	I_F = - 10 A, dI/dt = 100 A/µs, T_J = 25 °C		35	70	ns
Body Diode Reverse Recovery Charge	Q_{rr}			21	40	nC
Reverse Recovery Fall Time	t_a			20		ns
Reverse Recovery Rise Time	t_b			15		

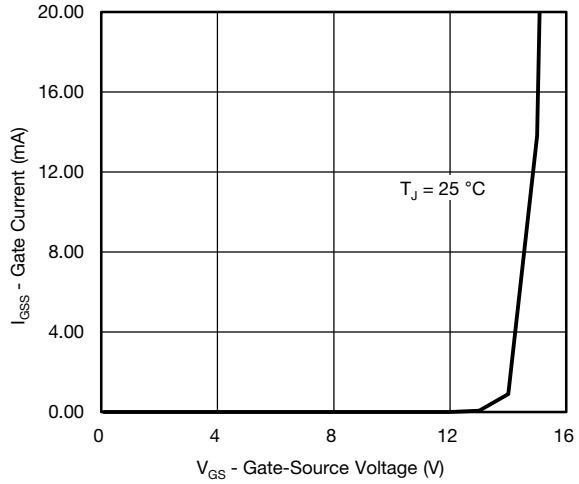
Notes

a. Pulse test; pulse width ≤ 300 µs, duty cycle ≤ 2 %.

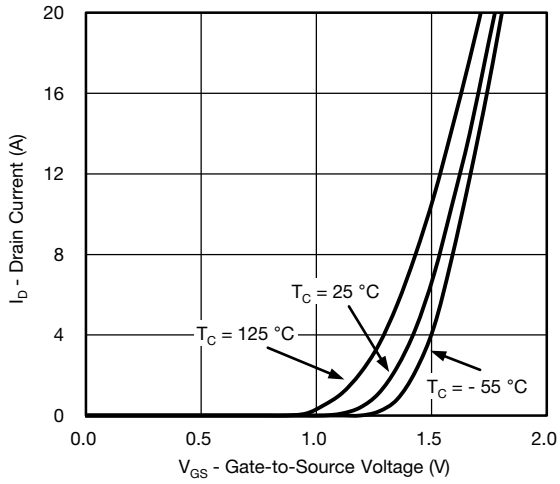
b. Guaranteed by design, not subject to production testing.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

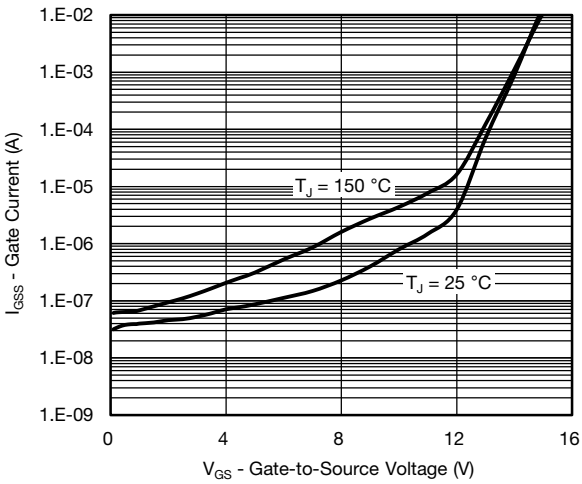
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



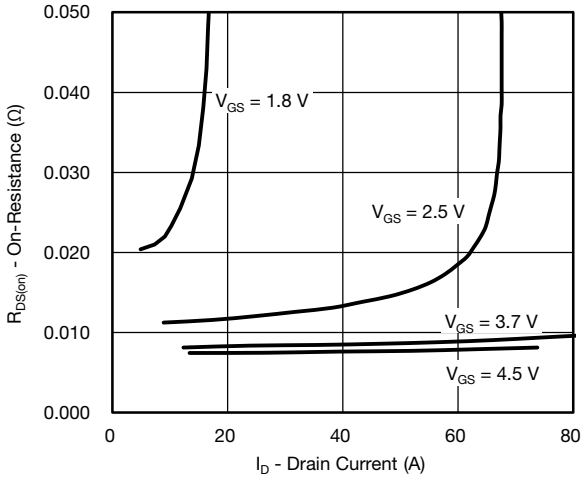
Gate Current vs. Gate-Source Voltage



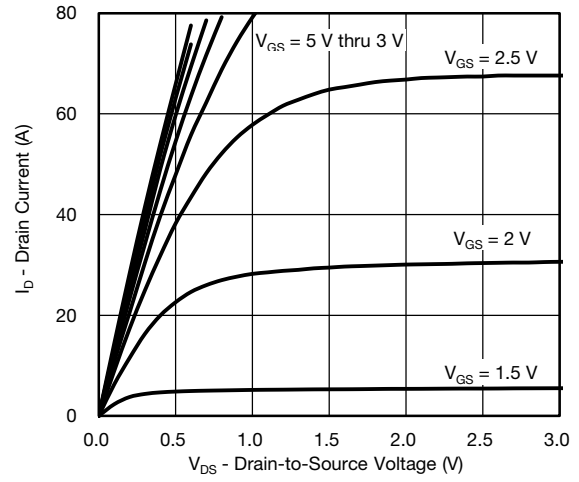
Transfer Characteristics



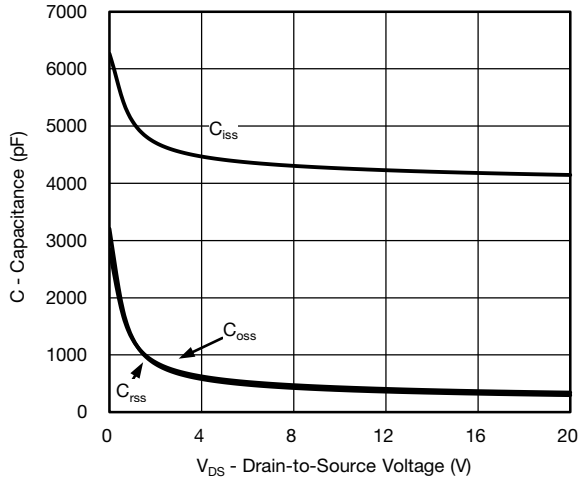
Gate Current vs. Gate-Source Voltage



On-Resistance vs. Drain Current and Gate Voltage

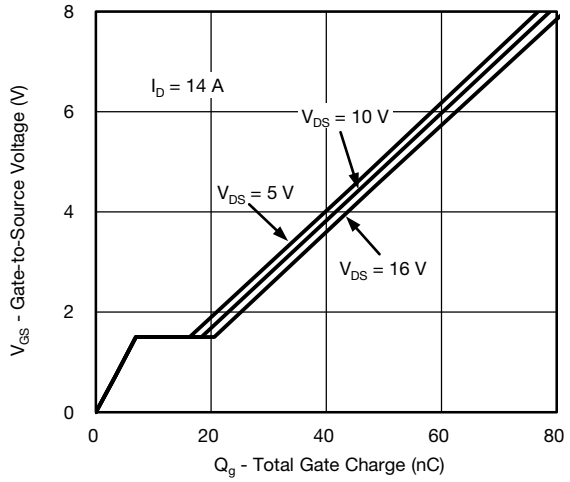


Output Characteristics

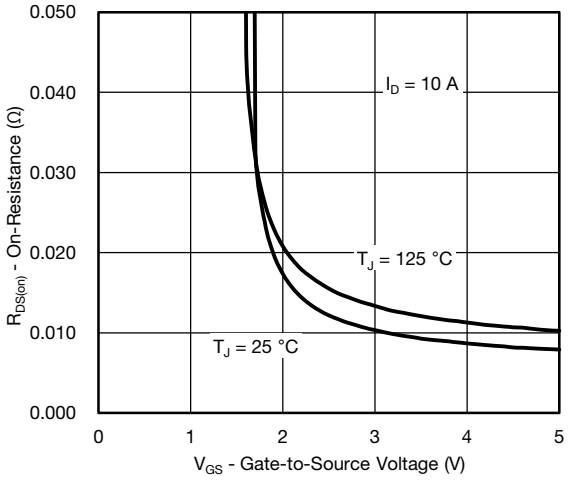


Capacitance

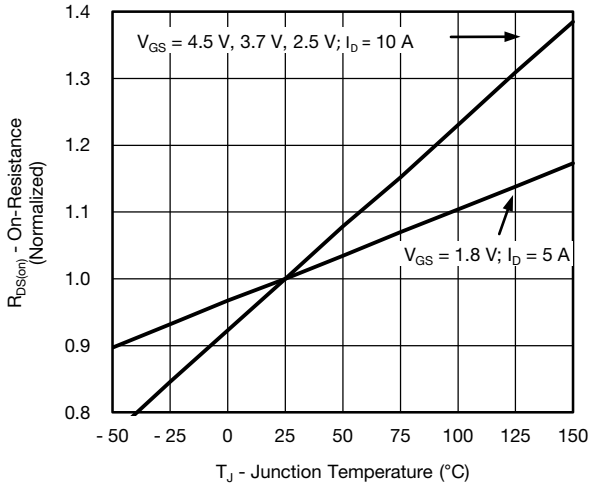
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



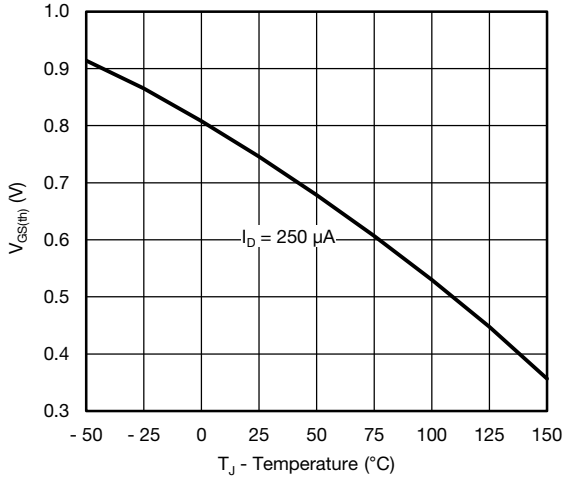
Gate Charge



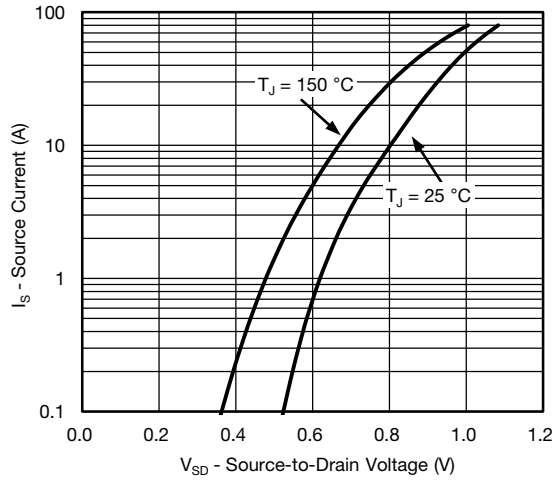
On-Resistance vs. Gate-to-Source Voltage



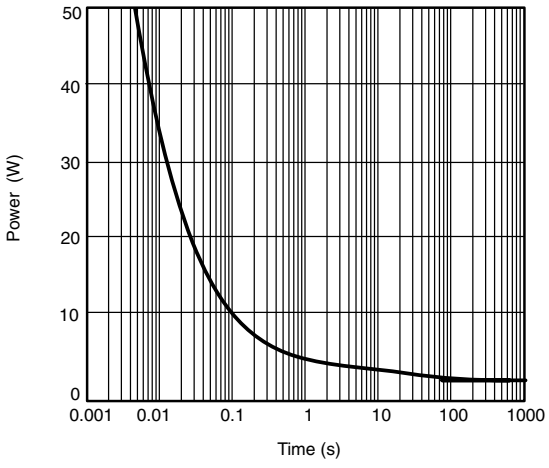
On-Resistance vs. Junction Temperature



Threshold Voltage

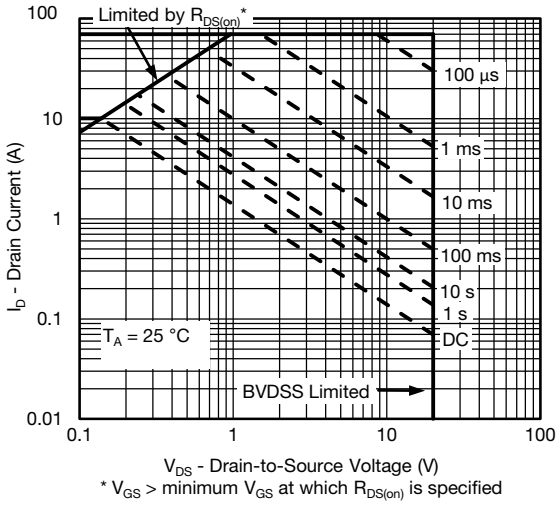


Soure-Drain Diode Forward Voltage

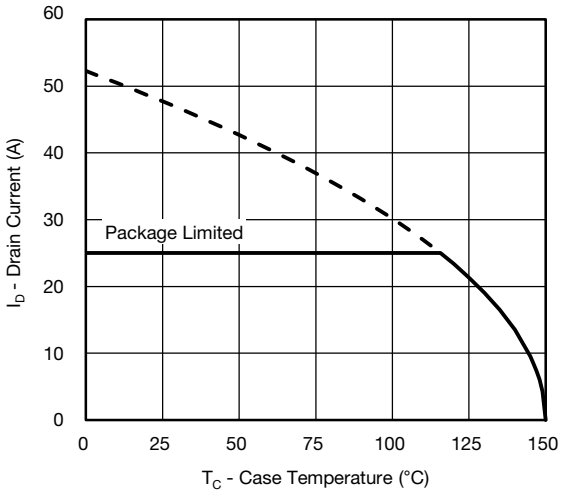


Single Pulse Power, Junction-to-Ambient

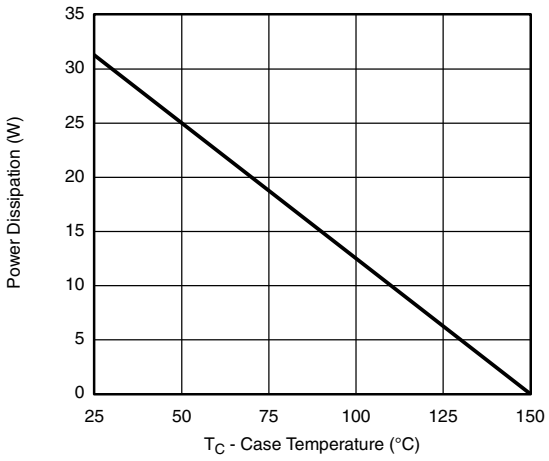
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



Safe Operating Area, Junction-to-Ambient



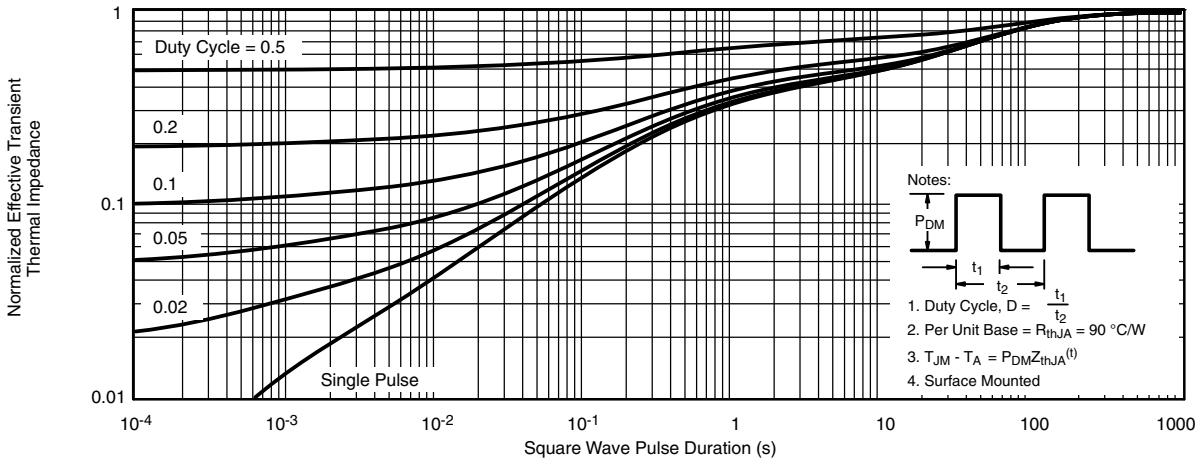
Current Derating*



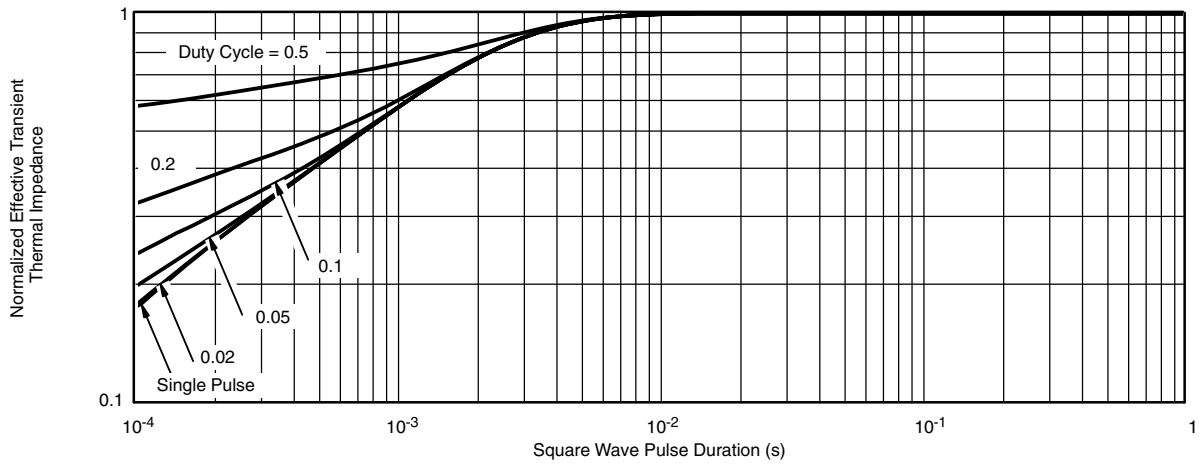
Power Derating

* 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)



Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Case

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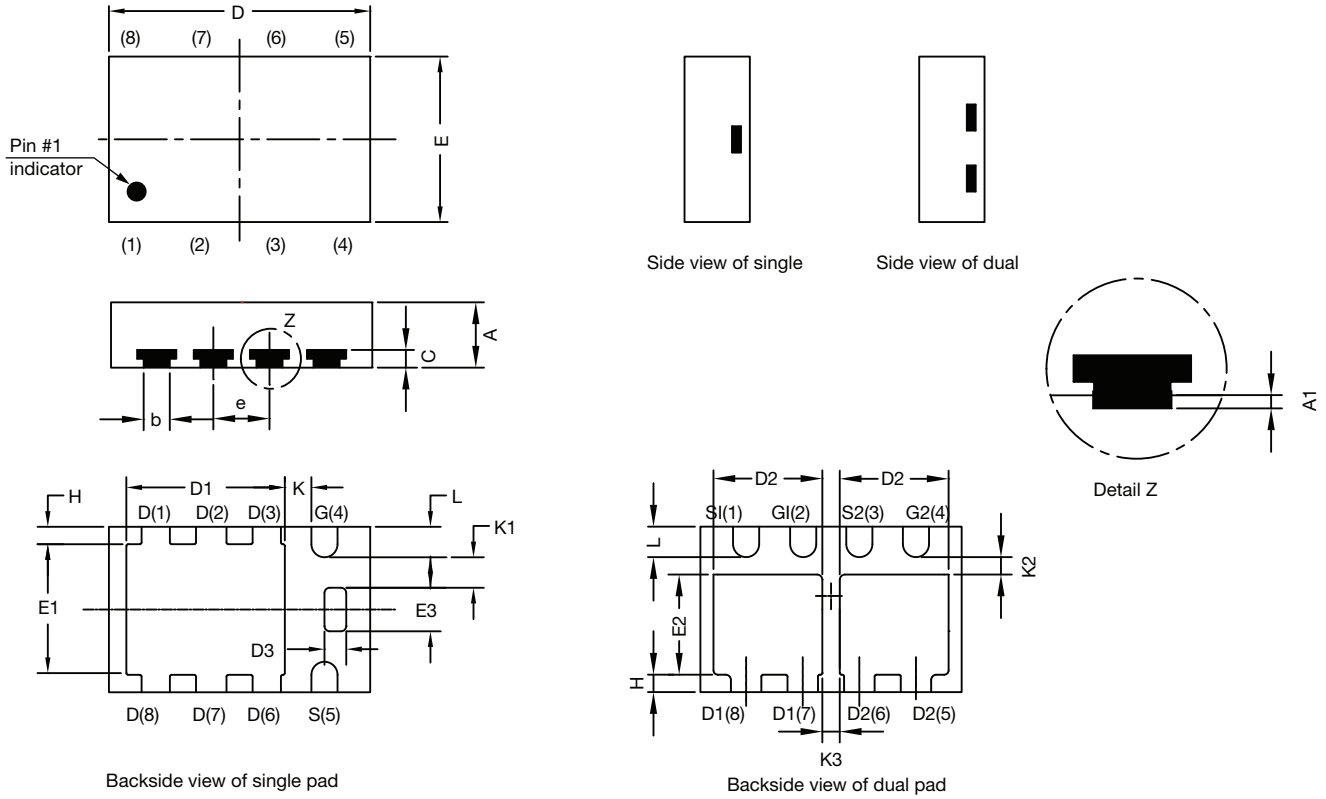
PowerPAK® ChipFET® Case Outline

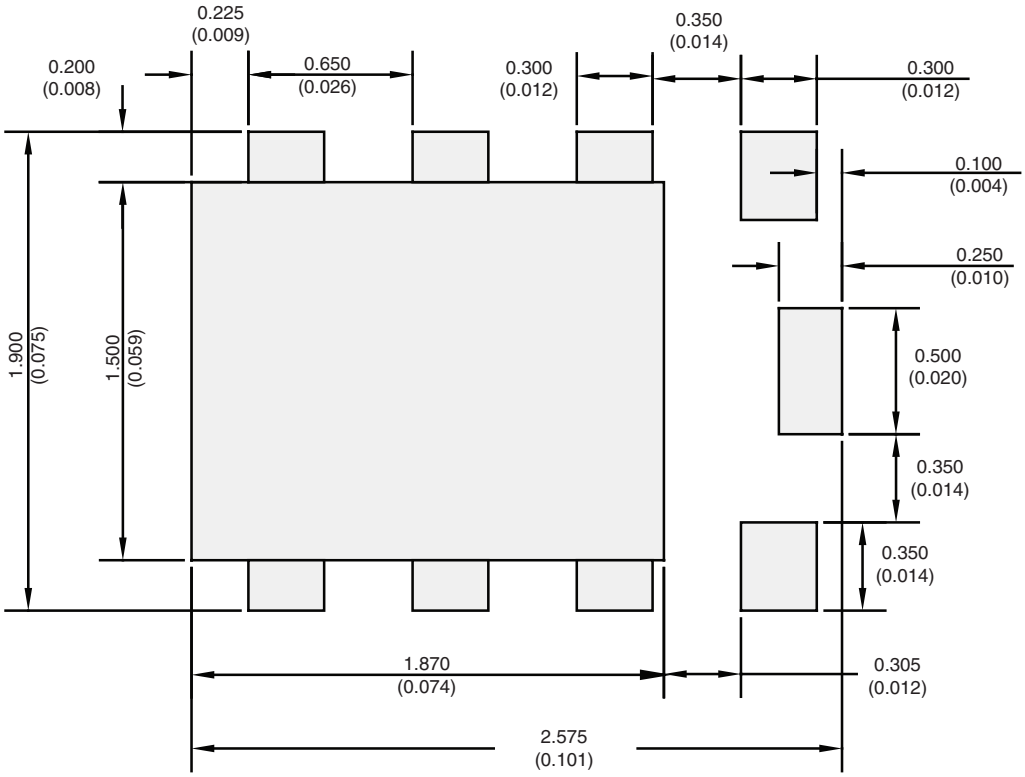


DIM.	MILLIMETERS			INCHES		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.70	0.75	0.85	0.028	0.030	0.033
A1	0	-	0.05	0	-	0.002
b	0.25	0.30	0.35	0.010	0.012	0.014
C	0.15	0.20	0.25	0.006	0.008	0.010
D	2.92	3.00	3.08	0.115	0.118	0.121
D1	1.75	1.87	2.00	0.069	0.074	0.079
D2	1.07	1.20	1.32	0.042	0.047	0.052
D3	0.20	0.25	0.30	0.008	0.010	0.012
E	1.82	1.90	1.98	0.072	0.075	0.078
E1	1.38	1.50	1.63	0.054	0.059	0.064
E2	0.92	1.05	1.17	0.036	0.041	0.046
E3	0.45	0.50	0.55	0.018	0.020	0.022
e	0.65 BSC			0.026 BSC		
H	0.15	0.20	0.25	0.006	0.008	0.010
K	0.25	-	-	0.010	-	-
K1	0.30	-	-	0.012	-	-
K2	0.20	-	-	0.008	-	-
K3	0.20	-	-	0.008	-	-
L	0.30	0.35	0.40	0.012	0.014	0.016
C14-0630-Rev. E, 21-Jul-14 DWG: 5940						

Note

- Millimeters will govern

RECOMMENDED MINIMUM PADS FOR PowerPAK® ChipFET® Single



Recommended Minimum Pads
Dimensions in mm/(Inches)

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