

Product Summary

V_{(BR)DSS}	R_{DS(on)TYP}	I_D (Tc=100℃)
650V	10mΩ@10V	120A



合肥矽普半导体

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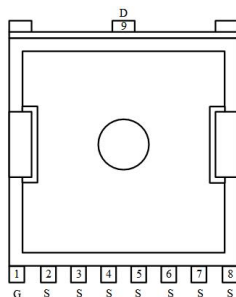
Feature

- High Speed Switching with Low Capacitances
- High Blocking Voltage with Low RDS(on)
- Easy to Parallel
- Simple to Drive
- RoHS Compliant
- Wafer level burn in&FT high temperature test
- AECQ-101 Qualified

Applications

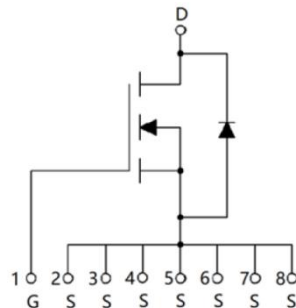
- Power Factor Correction Modules
- Switch Mode Power Supplies
- Photovoltaic Inverter
- UPS Power Supply
- Motor Drive
- High Voltage DC/DC Converter
- Switching Mode Power Supply

Package

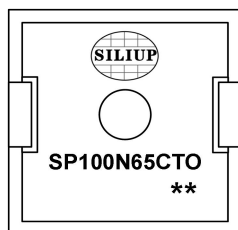


TOLL

Circuit diagram



Marking



SP100N65CTO : Product code
** : Week code

Order Information

Device	Package	Unit/Tape
SP100N65CTO	TOLL	2000

Absolute maximum ratings (Ta=25°C, unless otherwise noted)

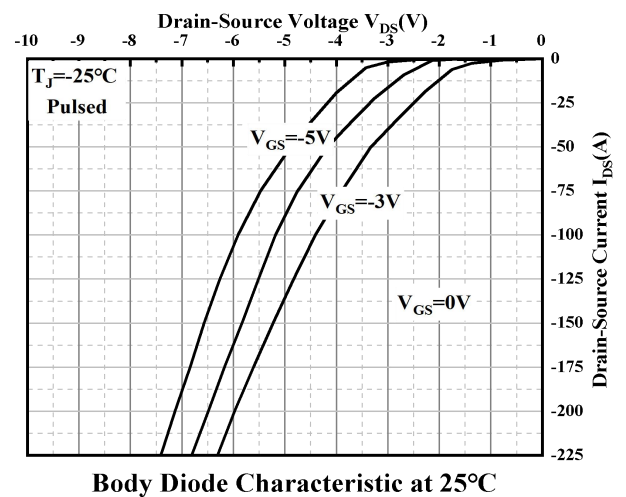
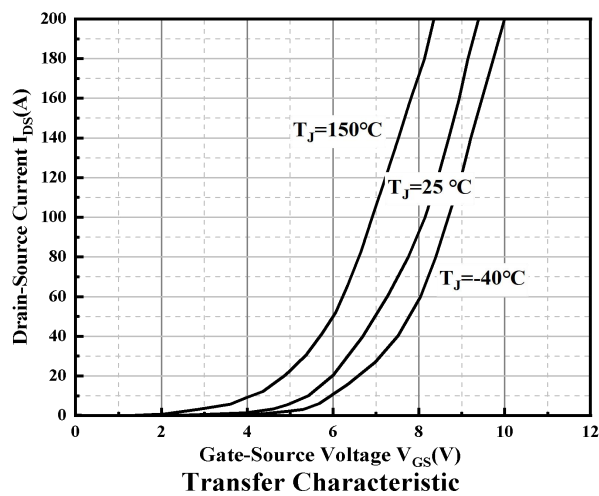
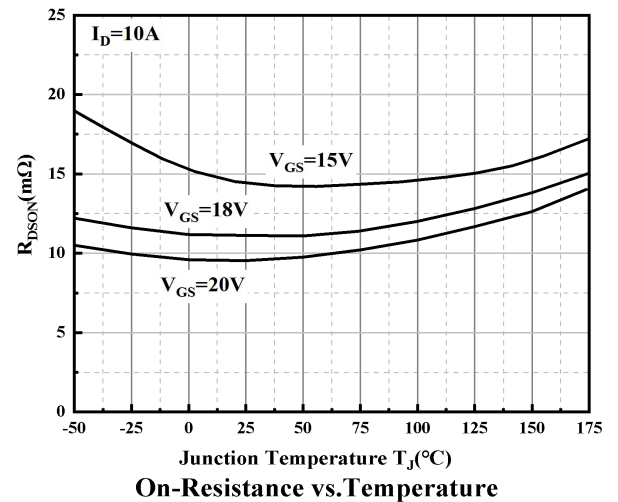
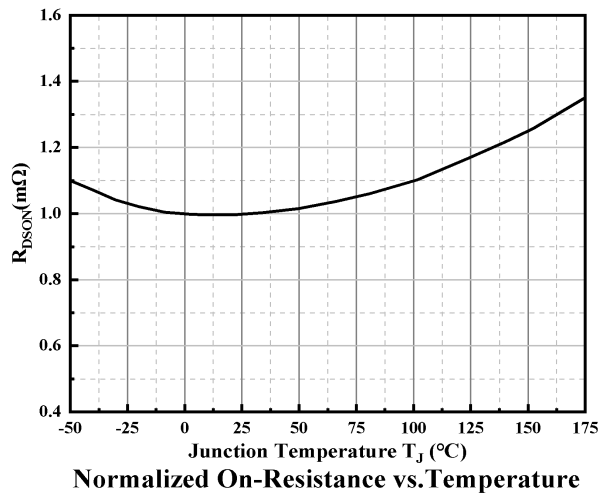
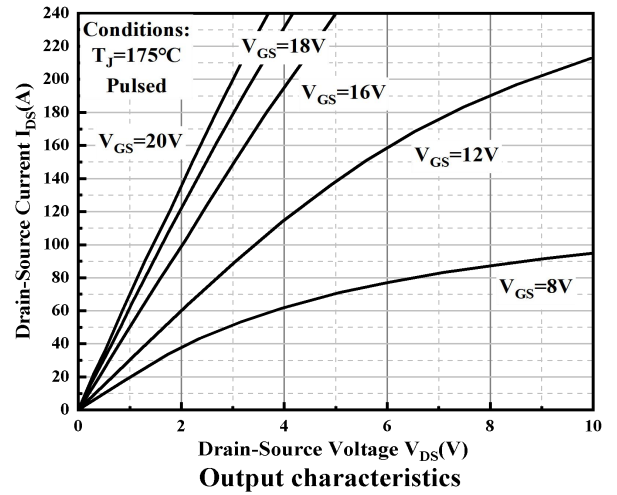
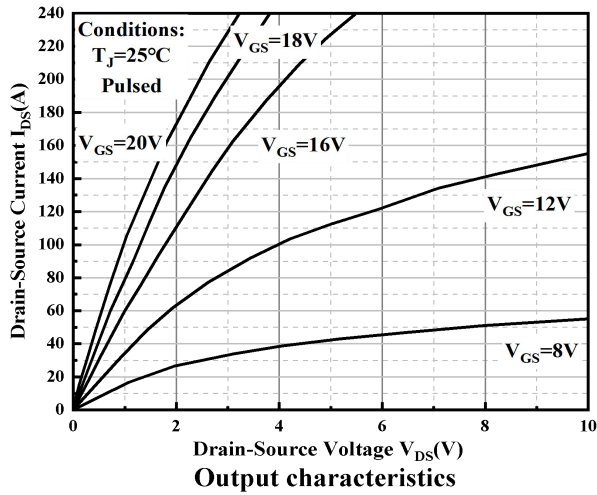
Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	$V_{GS\text{MAX}}$	-10/+22	V
Recommend Gate-Source Voltage	V_{GSop}	-5/+18	V
Continuous Drain Current(Tc=25°C)	I_D	172	A
Continuous Drain Current(Tc=100°C)	I_D	120	A
Pulsed Drain Current	I_{DM}	380	A
Total Power Dissipation(Tc=25°C)	P_D	428	W
Total Power Dissipation ² (Tc=100°C)	P_D	214	W
Thermal Resistance Junction-Case	$R_{\theta JC}$	0.35	°C/W
Storage Temperature Range	T_{STG}	-55 to 175	°C
Operating Junction Temperature Range	T_J	-55 to 175	°C

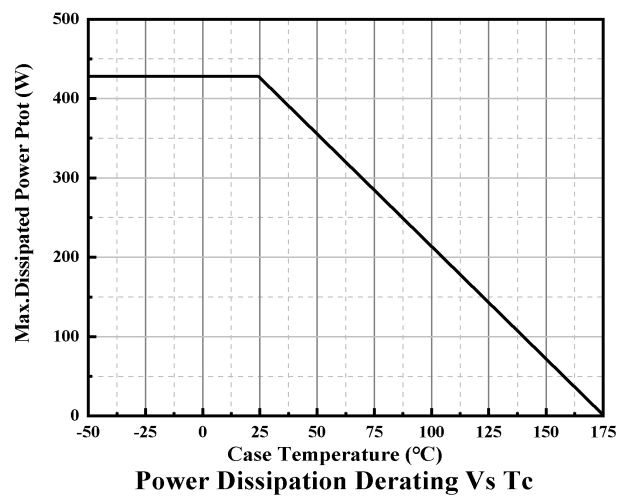
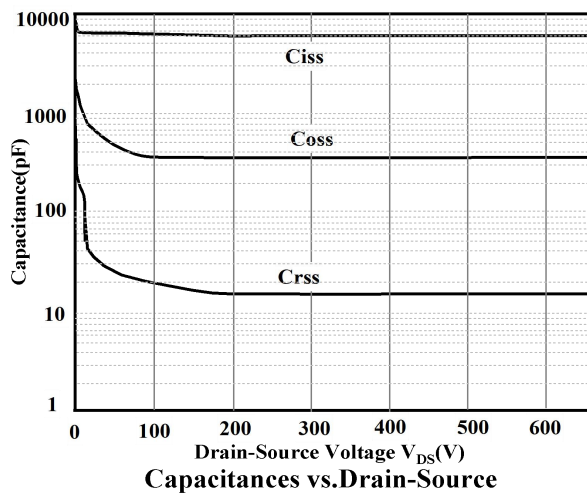
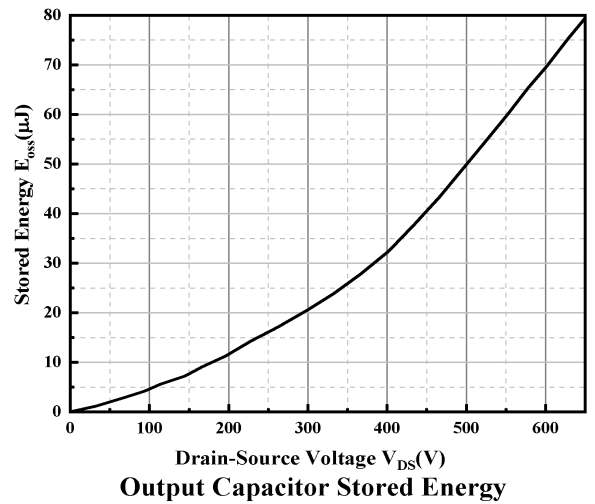
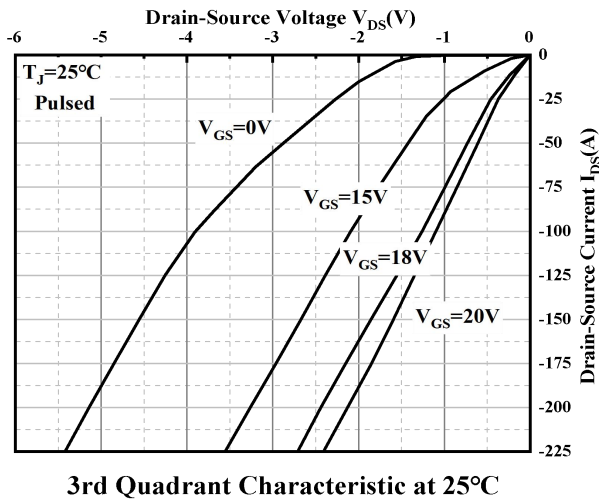
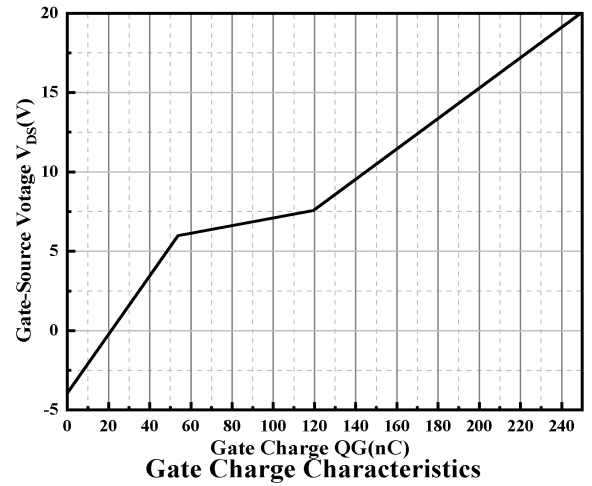
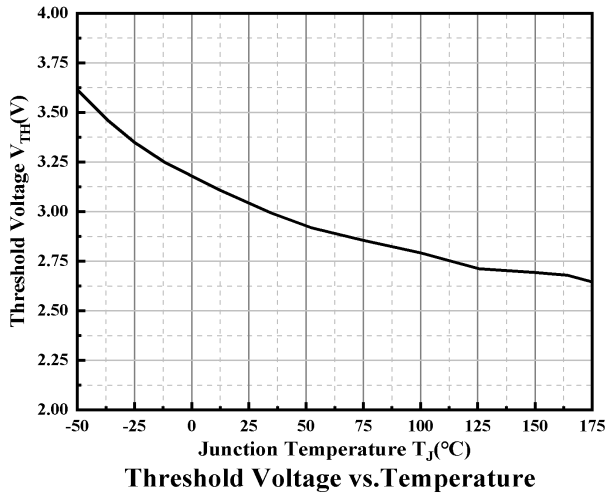
Electrical characteristics (Ta=25°C, unless otherwise noted)

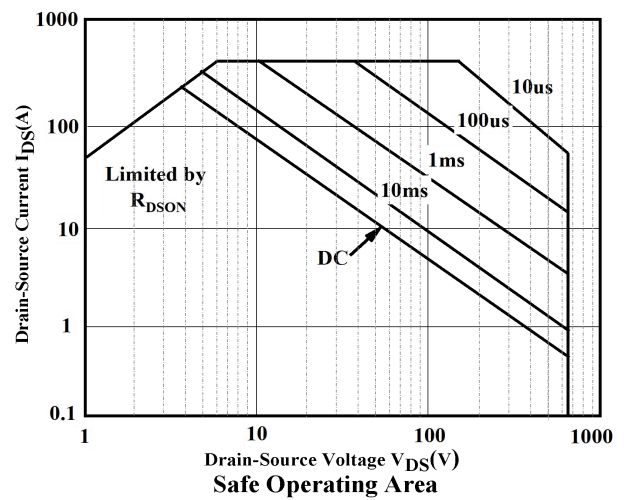
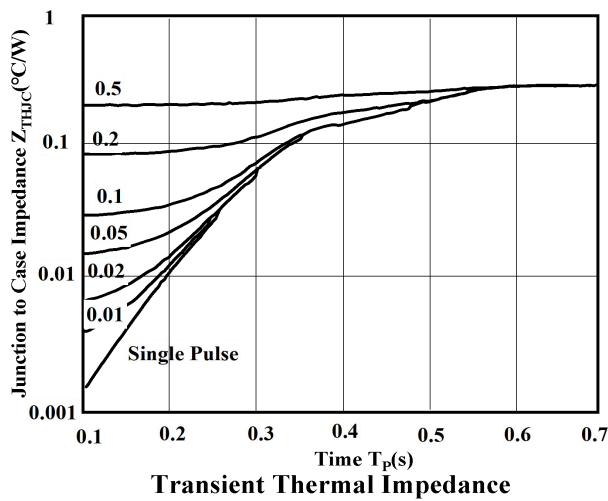
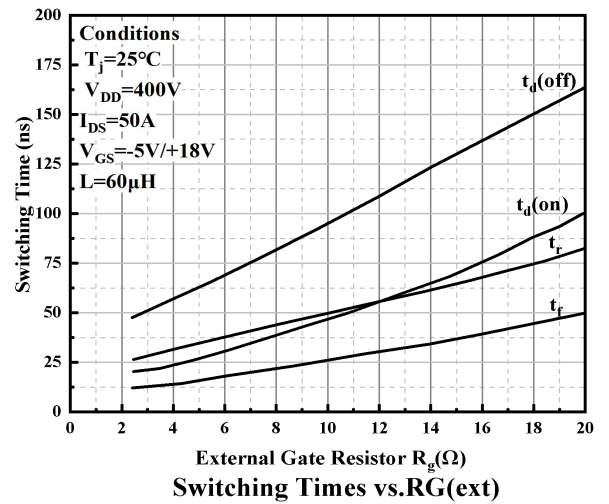
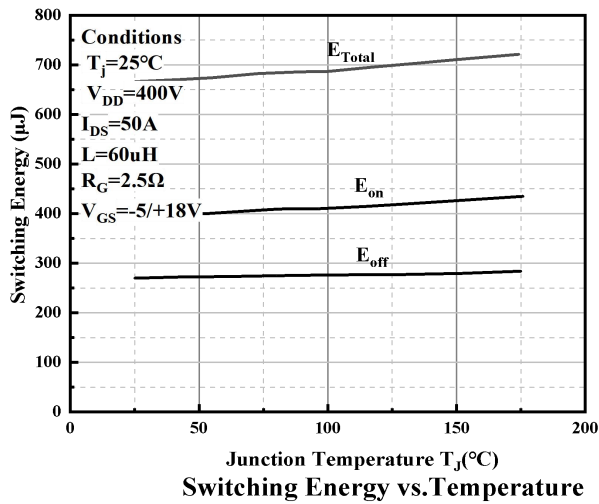
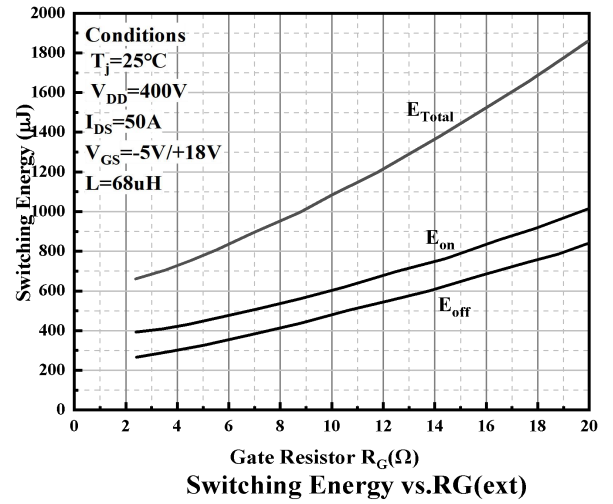
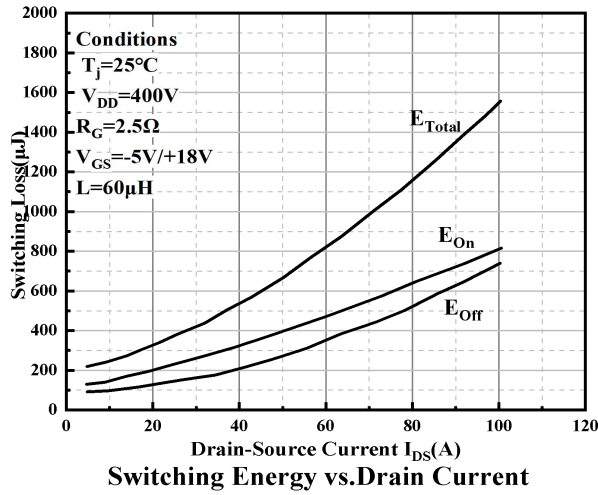
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V , ID=250uA	650	-	-	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =650V, V _{GS} =0V, T _J =25℃	-	5	100	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =-10 to 20V , V _{DS} =0V, T _J =25℃	-	10	100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =22mA, T _J =25℃	2.0	3.0	4.0	V
		V _{GS} =V _{DS} , I _D =22mA, T _J =175℃	-	2.93	-	
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =18V , I _D =75A, T _J =25℃	-	10	15	mΩ
		V _{GS} =18V , I _D =75A, T _J =175℃	-	16	-	
Internal Gate Resistance	R _{G(int)}	V _{DS} =600V , V _{GS} =0V , f=1MHz , V _{AC} =25mV	-	2.2	-	Ω
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =600V , V _{GS} =0V , f=1MHz , V _{AC} =25mV	-	6350	-	pF
Output Capacitance	C _{oss}		-	355	-	
Reverse Transfer Capacitance	C _{rss}		-	16	-	
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} =400V , V _{GS} = -5/+218V , I _D =50A	-	236	-	nC
Gate-Source Charge	Q _{gs}		-	56	-	
Gate-Drain Charge	Q _{gd}		-	64	-	
Turn-On Delay Time	T _{d(on)}	V _{DS} =400V , V _{GS} = -5/+18V , I _D =50A R _G =2.5Ω, L=60uH	-	26	-	ns
Rise Time	T _r		-	35	-	
Turn-Off Delay Time	T _{d(off)}		-	63	-	
Fall Time	T _f		-	17	-	
Turn-On Energy	E _{on}		-	436	-	μJ
Turn-Off Energy	E _{off}		-	287	-	
Total Switching Loss	E _{tot}		-	723	-	

Reverse Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} = 0V , I _{SD} =150A , T _J =25°C	-	3.5	6.0	V
		V _{GS} = 0V , I _{SD} =50A , T _J =175°C	-	3.0	6.0	
Reverse Recovery Time	t _{rr}	V _{GS} =-5V, I _{SD} =50A, V _R =400V, R _G =2.5Ω T _J =175°C	-	88	-	ns
Reverse Recovery Charge	Q _{rr}		-	680	-	nC
Peak Reverse Recovery Current	I _{rrm}		-	17	-	A
Maximum Body-Diode Continuous Current	I _S	V _{GS} = 0V , T _J =25°C	-	80	-	A

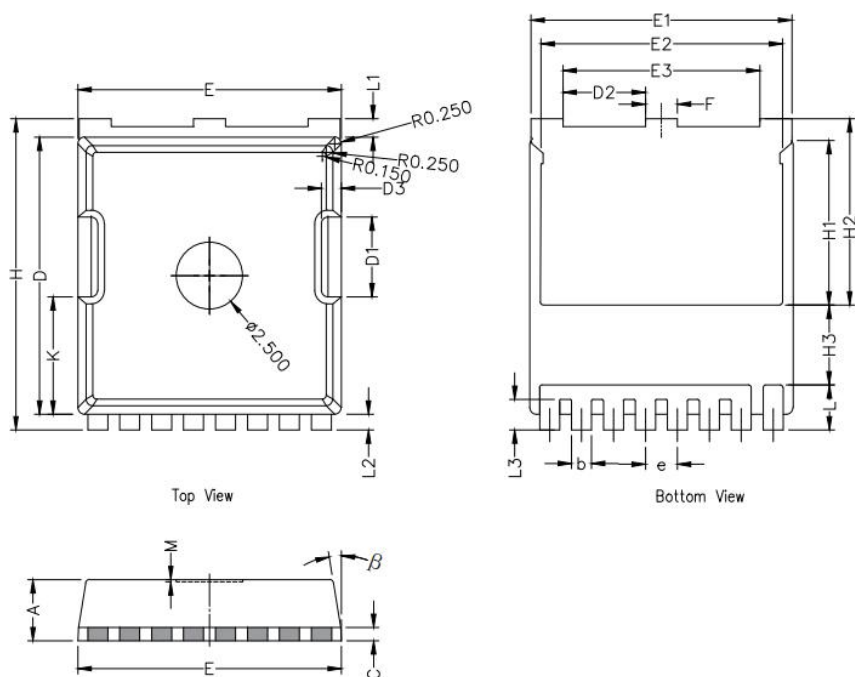
Typical Characteristics







TOLL Package Information



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Symbol	Dimensions In Millimeters		
	Min.	Nom.	Max.
A	2.20	2.30	2.40
b	0.65	0.75	0.85
C	0.508 REF		
D	10.25	10.40	10.55
D1	2.85	3.00	3.15
E	9.75	9.90	10.05
E1	9.65	9.80	9.95
E2	8.95	9.10	9.25
E3	7.25	7.40	7.55
e	1.20 BSC		
F	1.05	1.20	1.35
H	11.55	11.70	11.85
H1	6.03	6.18	6.33
H2	6.85	7.00	7.15
H3	3.00 BSC		
L	1.55	1.70	1.85
L1	0.55	0.7	0.85
L2	0.45	0.6	0.75
M	0.08 REF.		
β	8°	10°	12°
K	4.25	4.40	4.55