CEP100N12/CEB100N12

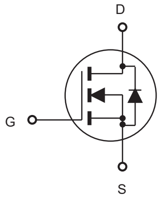
N-Channel Enhancement Mode Field Effect Transistor

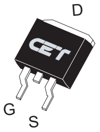
PRELIMINARY

V_{DSS}	$R_{DS(ON)}$ typ	I_D	@V_{GS}
120V	6mΩ	100A	10V

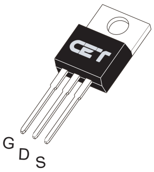
FEATURES

- High power and current handing capability.
- Reliable and rugged.
- Pb-free lead plating ; RoHS compliant.
- Halogen Free.





CEB SERIES
TO-263(DD-PAK)



CEP SERIES
TO-220

APPLICATIONS

- Synchronous Rectification.
- DC/DC converter.
- Motor drive.

ABSOLUTE MAXIMUM RATINGS $T_C = 25^\circ C$ unless otherwise noted

Parameter	Symbol	Limit	Units
Drain-Source Voltage	V_{DS}	120	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous @ $T_C = 25^\circ C$	I_D	100	A
@ $T_C = 70^\circ C$		80	A
Drain Current-Pulsed [a]	I_{DM}	400	A
Maximum Power Dissipation @ $T_C = 25^\circ C$	P_D	125	W
- Derate above 25°C		1	W/°C
Operating and Store Temperature Range	T_J, T_{stg}	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Limit	Units
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62.5	°C/W

This is preliminary information on a new product in development now
Details are subject to change without notice .

Electrical Characteristics $T_C = 25^\circ C$ unless otherwise noted

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D = 250µA	120			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 120V, V_{GS} = 0V			1	µA
Gate Body Leakage Current, Forward	I_{GSSF}	V_{GS} = 20V, V_{DS} = 0V			100	nA
Gate Body Leakage Current, Reverse	I_{GSSR}	V_{GS} = -20V, V_{DS} = 0V			-100	nA
On Characteristics [b]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS} = V_{DS}, I_D = 250µA	2		4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 20A		6	7	mΩ
Gate input resistance	R_g	f=1MHz,open Drain		1.8		Ω
Dynamic Characteristics [c]						
Input Capacitance	C_{iss}	V_{DS} = 60V, V_{GS} = 0V, f = 1.0 MHz		2590		pF
Output Capacitance	C_{oss}			420		pF
Reverse Transfer Capacitance	C_{rss}			15		pF
Switching Characteristics [c]						
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 60V, I_D = 20A, V_{GS} = 10V, R_{GEN} = 10Ω		36		ns
Turn-On Rise Time	t_r			17		ns
Turn-Off Delay Time	$t_{d(off)}$			65		ns
Turn-Off Fall Time	t_f			23		ns
Total Gate Charge	Q_g	V_{DS} = 60V, I_D = 20A, V_{GS} = 10V		45		nC
Gate-Source Charge	Q_{gs}			13		nC
Gate-Drain Charge	Q_{gd}			10		nC
Drain-Source Diode Characteristics and Maximun Ratings						
Drain-Source Diode Forward Current	I_S				100	A
Drain-Source Diode Forward Voltage [b]	V_{SD}	V_{GS} = 0V, I_S = 20A			1.2	V

Notes :
a.Repetitive Rating : Pulse width limited by maximum junction temperature.
b.Pulse Test : Pulse Width ≤ 300µs, Duty Cycle ≤ 2%.
c.Guaranteed by design, not subject to production testing.

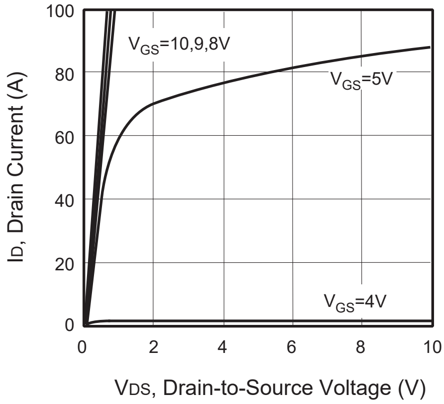


Figure 1. Output Characteristics

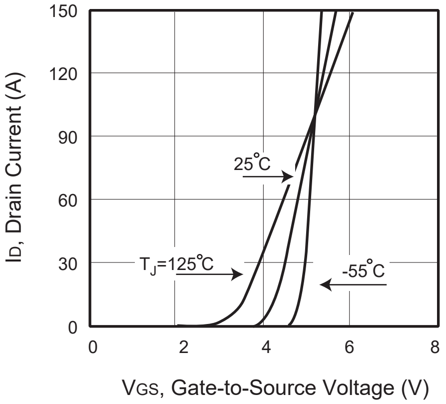


Figure 2. Transfer Characteristics

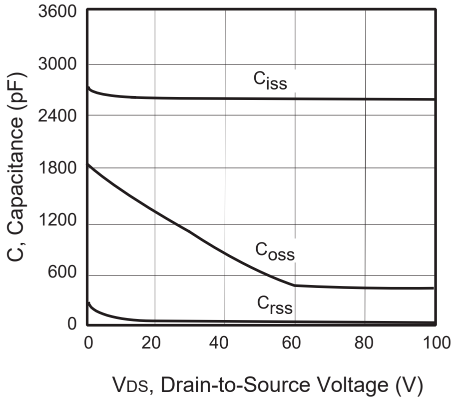


Figure 3. Capacitance

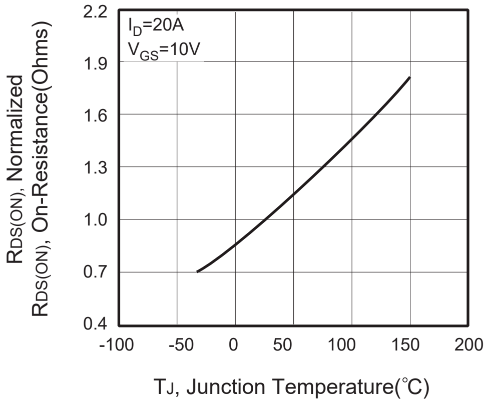


Figure 4. On-Resistance Variation with Temperature

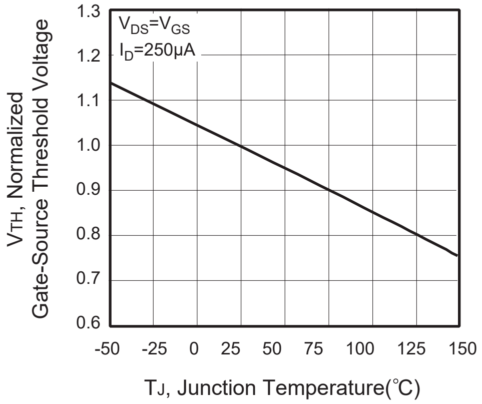


Figure 5. Gate Threshold Variation with Temperature

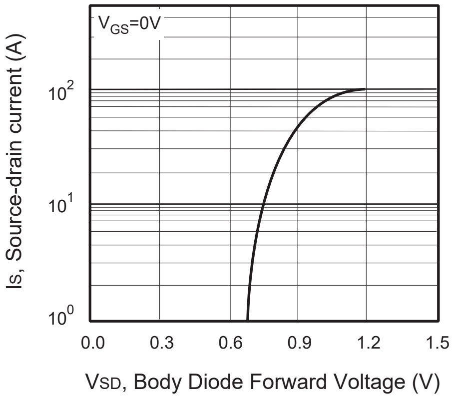


Figure 6. Body Diode Forward Voltage Variation with Source Current

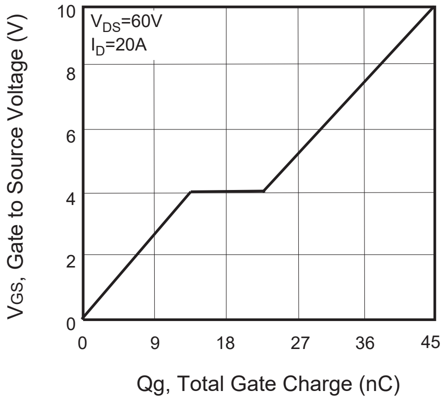


Figure 7. Gate Charge

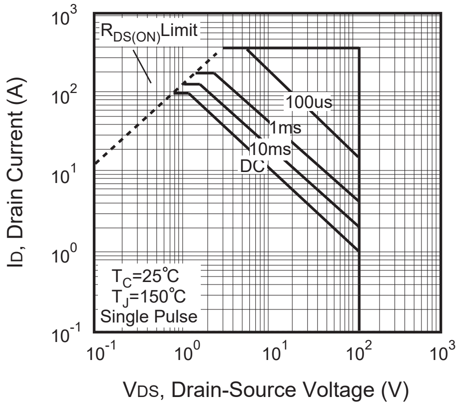


Figure 8. Maximum Safe Operating Area

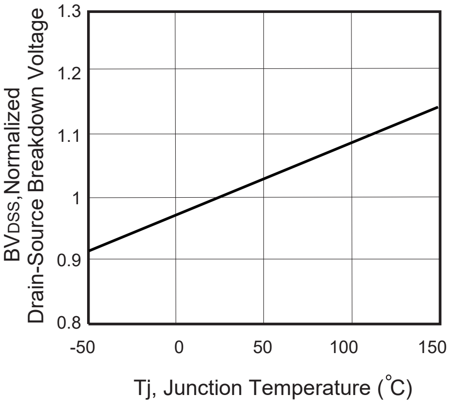


Figure 9. Breakdown Voltage Variation VS Temperature

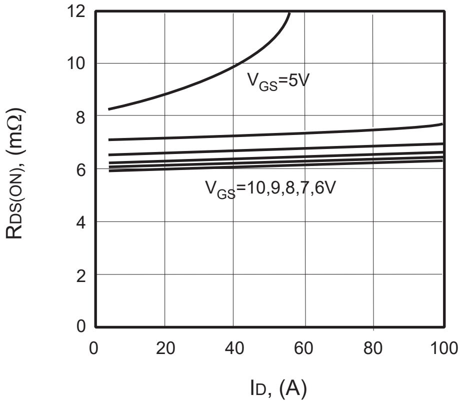


Figure 10. On-Resistance vs. Drain Current

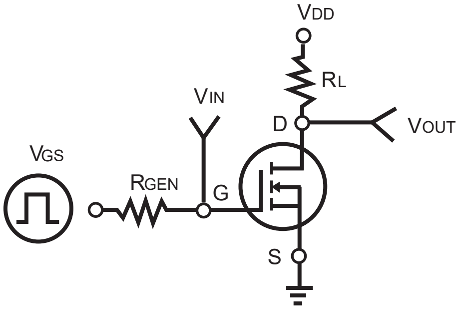


Figure 11. Switching Test Circuit

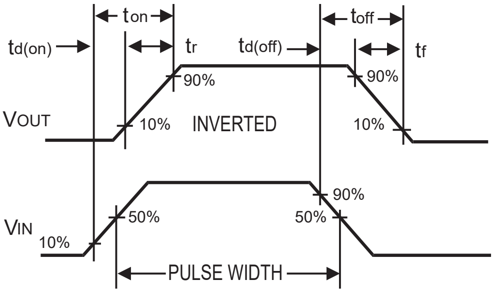


Figure 12. Switching Waveforms

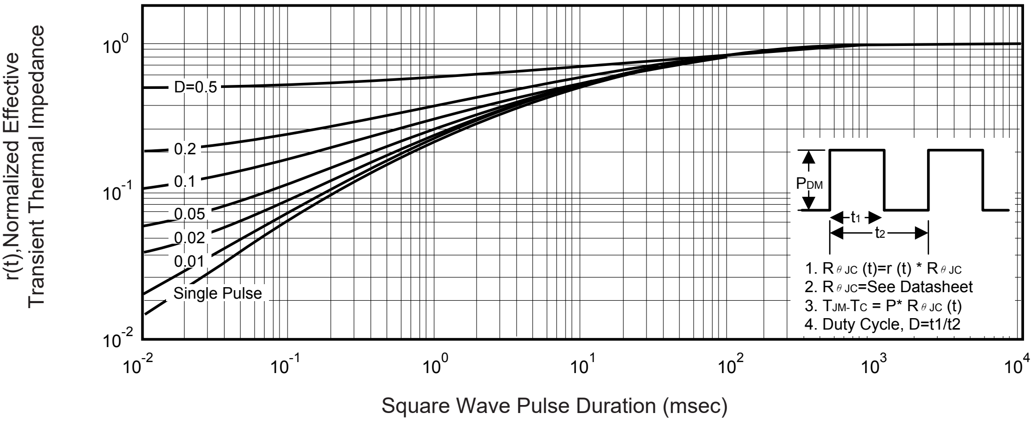


Figure 13. Normalized Thermal Transient Impedance Curve