



CEP8060L/CEB8060L

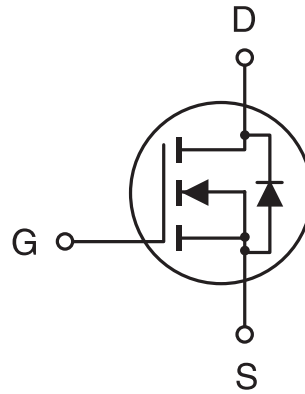
PRELIMINARY

N-Channel Logic Level Enhancement Mode Field Effect Transistor

4

FEATURES

- 60V , 80A , $R_{DS(ON)}=9.0m\Omega$ @ $V_{GS}=10V$.
 $R_{DS(ON)}=12.0m\Omega$ @ $V_{GS}= 5V$.
- Super high dense cell design for extremely low $R_{DS(ON)}$.
- High power and current handling capability.
- TO-220 & TO-263 package.



ABSOLUTE MAXIMUM RATINGS (Tc=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	60	V
Gate-Source Voltage	V _{GS}	±20	V
Drain Current-Continuous -Pulsed	I _D	80	A
	I _{DM}	225	A
Drain-Source Diode Forward Current	I _S	80	A
Maximum Power Dissipation @T _c =25°C Derate above 25°C	P _D	150	W
		1	W/°C
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to 175	°C

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Case	R _{θJC}	1	°C/W
Thermal Resistance, Junction-to-Ambient	R _{θJA}	62.5	°C/W

CEP8060L/CEB8060L

4

ELECTRICAL CHARACTERISTICS (T_c=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			25	μA
Gate-Body Leakage	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
ON CHARACTERISTICS^a						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1		2	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =37.5A			9	mΩ
		V _{GS} =5V, I _D =37.5A			12	mΩ
On-State Drain Current	I _{D(ON)}	V _{GS} =5V, V _{DS} =10V	60			A
Forward Transconductance	g _{FS}	V _{DS} =10V, I _D =37.5A		15		S
DYNAMIC CHARACTERISTICS^b						
Input Capacitance	C _{ISS}	V _{DS} =25V, V _{GS} =0V f=1.0MHz		3230	4200	pF
Output Capacitance	C _{OSS}			1230	1600	pF
Reverse Transfer Capacitance	C _{RSS}			615	800	pF
SWITCHING CHARACTERISTICS^b						
Turn-On Delay Time	t _{D(ON)}	V _{DD} =30V, I _D =75A, V _{GS} =5V R _{GEN} =10Ω		20	40	ns
Rise Time	t _r			460	600	ns
Turn-Off Delay Time	t _{D(OFF)}			125	150	ns
Fall Time	t _f			210	400	ns
Total Gate Charge	Q _g	V _{DS} =48V, I _D =75A, V _{GS} =5V		61	115	nC
Gate-Source Charge	Q _{gs}			15		nC
Gate-Drain Charge	Q _{gd}			18		nC

CEP8060L/CEB8060L

ELECTRICAL CHARACTERISTICS (T_c=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
DRAIN-SOURCE DIODE CHARACTERISTICS^a						
Diode Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = 10A		0.86	1.2	V

Notes

- a. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

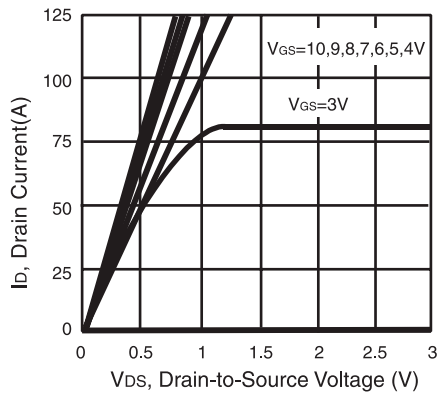


Figure 1. Output Characteristics

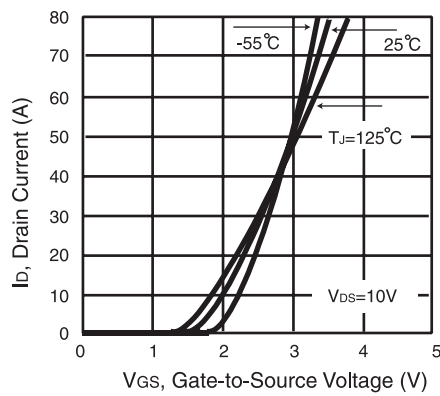


Figure 2. Transfer Characteristics

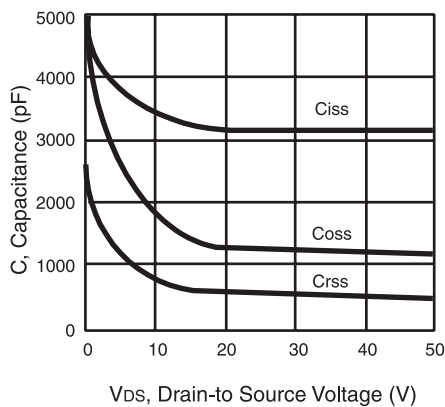


Figure 3. Capacitance

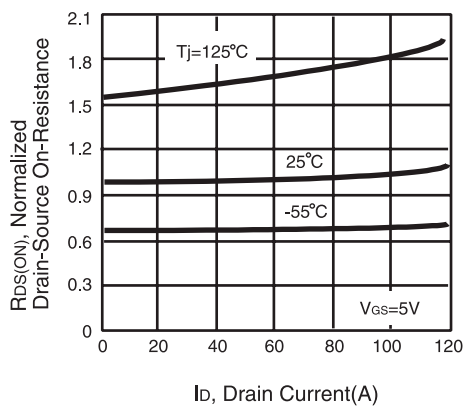


Figure 4. On-Resistance Variation with Drain Current and Temperature

CEP8060L/CEB8060L

4

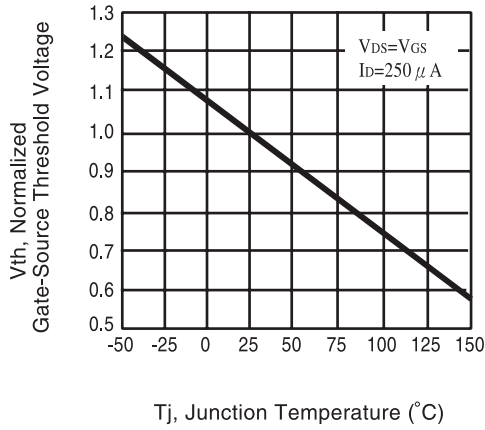


Figure 5. Gate Threshold Variation with Temperature

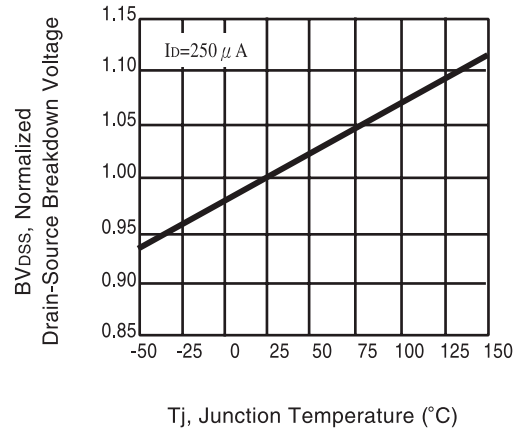


Figure 6. Breakdown Voltage Variation with Temperature

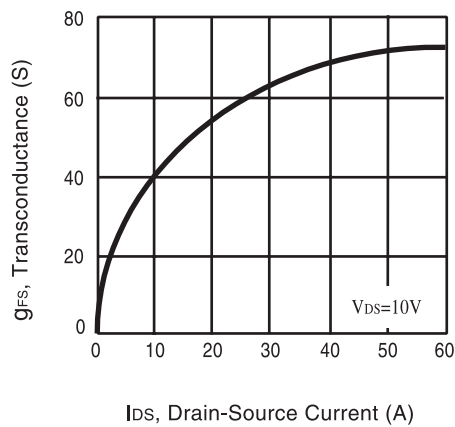


Figure 7. Transconductance Variation with Drain Current

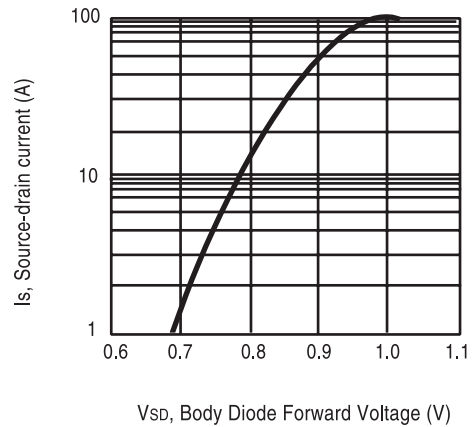


Figure 8. Body Diode Forward Voltage Variation with Source Current

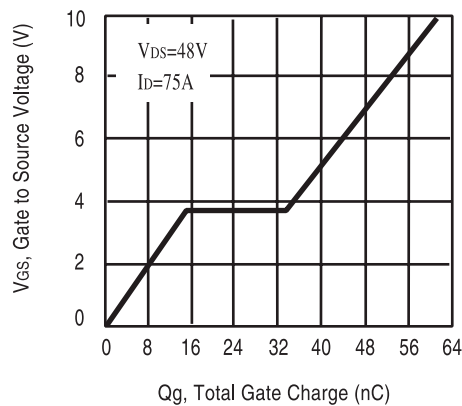


Figure 9. Gate Charge

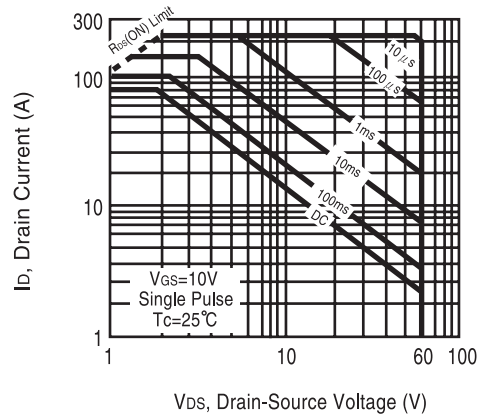


Figure 10. Maximum Safe Operating Area

CEP8060L/CEB8060L

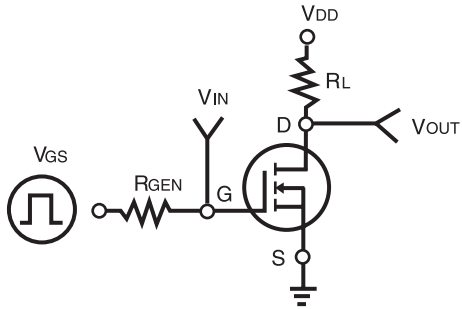


Figure 11. Switching Test Circuit

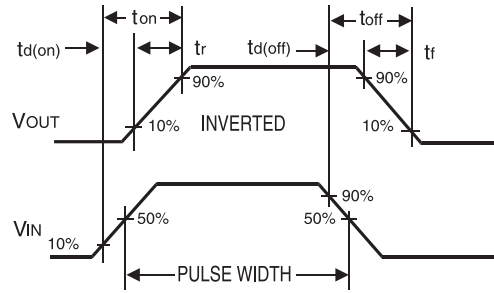


Figure 12. Switching Waveforms

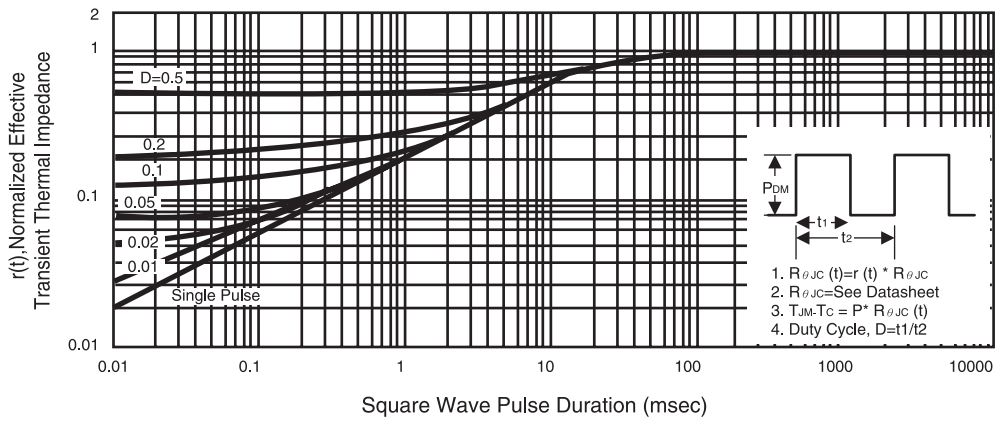


Figure 13. Normalized Thermal Transient Impedance Curve