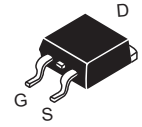
CEPF630/CEBF630
CEFF630

N-Channel Enhancement Mode Field Effect Transistor

FEATURES

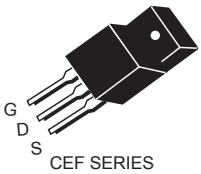
Type	V_{DSS}	$R_{DS(ON)}$	I_D	@V_{GS}
CEPF630	200V	0.35Ω	10A	10V
CEBF630	200V	0.35Ω	10A	10V
CEFF630	200V	0.35Ω	10A [d]	10V

- Super high dense cell design for extremely low $R_{DS(ON)}$.
- High power and current handing capability.
- Lead free product is acquired.

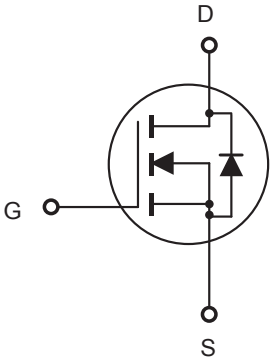


CEB SERIES
TO-263(DD-PAK)

CEP SERIES
TO-220



CEF SERIES
TO-220F



ABSOLUTE MAXIMUM RATINGS T_C = 25°C unless otherwise noted

Parameter	Symbol	Limit		Units
		TO-220/263	TO-220F	
Drain-Source Voltage	V_{DS}	200		V
Gate-Source Voltage	V_{GS}	±20		V
Drain Current-Continuous	I_D	10	10 [d]	A
Drain Current-Pulsed [a]	I_{DM} [e]	40	40 [d]	A
Maximum Power Dissipation @ T_C = 25°C	P_D	75	33	W
- Derate above 25°C		0.6	0.27	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	$R_{\theta JC}$	1.5	3.7	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62.5	65	°C/W

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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	200			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 160V, V_{GS} = 0V			25	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 = 5A			350	mΩ
Forward Transconductance	g_{FS}	V_{DS} = 10V, I_D = 5A		6		S
Dynamic Characteristics [c]						
Input Capacitance	C_{iss}	V_{DS} = 25V, V_{GS} = 0V, f = 1.0 MHz		680		pF
Output Capacitance	C_{oss}			105		pF
Reverse Transfer Capacitance	C_{rss}			40		pF
Switching Characteristics [c]						
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 100V, I_D = 5A, V_{GS} = 10V, R_{GEN} = 50Ω		50	100	ns
Turn-On Rise Time	t_r			80	160	ns
Turn-Off Delay Time	$t_{d(off)}$			55	110	ns
Turn-Off Fall Time	t_f			40	80	ns
Total Gate Charge	Q_g	V_{DS} = 160V, I_D =5.9A, V_{GS} = 10V		27	54	nC
Gate-Source Charge	Q_{gs}			4		nC
Gate-Drain Charge	Q_{gd}			14.7		nC
Drain-Source Diode Characteristics and Maximun Ratings						
Drain-Source Diode Forward Current	I_S				10	A
Drain-Source Diode Forward Voltage [b]	V_{SD}	V_{GS} = 0V, I_S = 10A			1.5	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.
d.Limited only by maximum temperature allowed .
e.Pulse width limited by safe operating area .
f.Full package $I_{S(max)}$ = 6.4A .
g.Full package V_{SD} test condition I_S = 6.4A .

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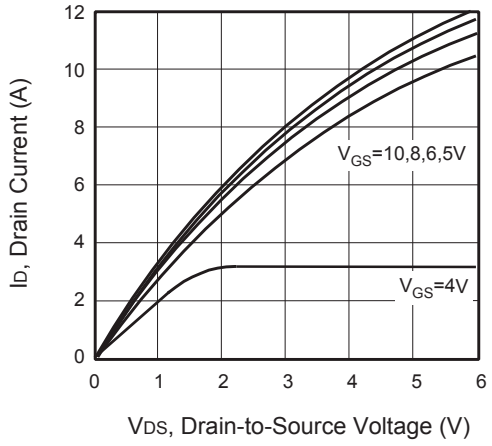

Figure 1. Output Characteristics

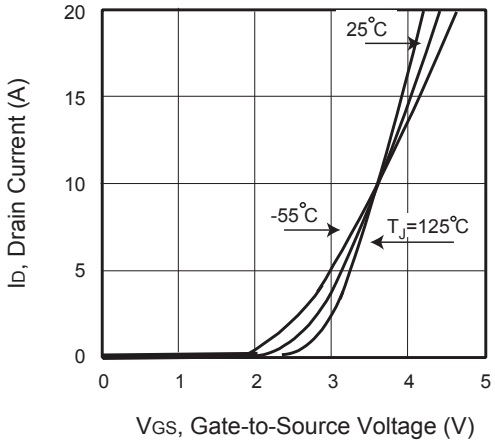

Figure 2. Transfer Characteristics

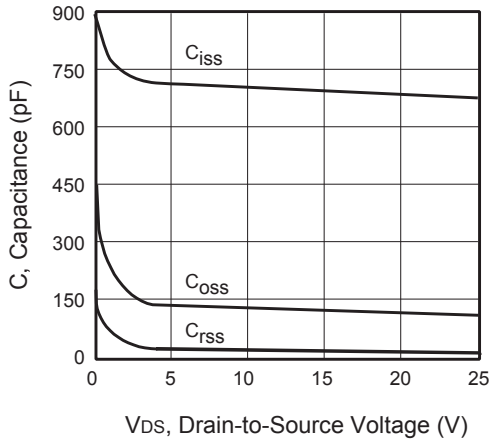

Figure 3. Capacitance

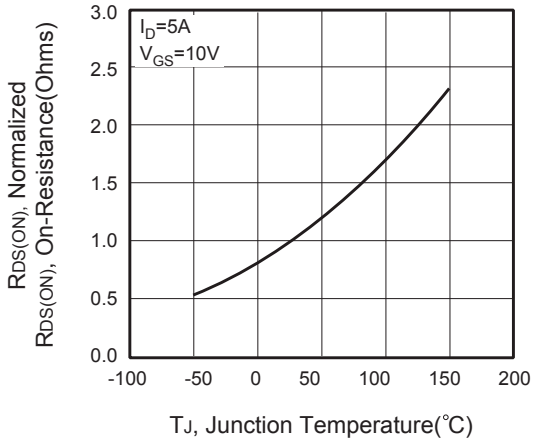

Figure 4. On-Resistance Variation with Temperature

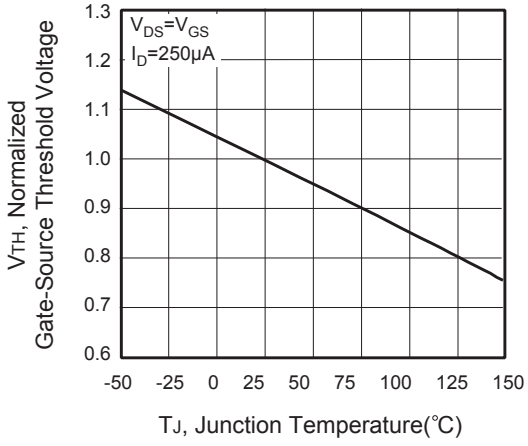

Figure 5. Gate Threshold Variation with Temperature

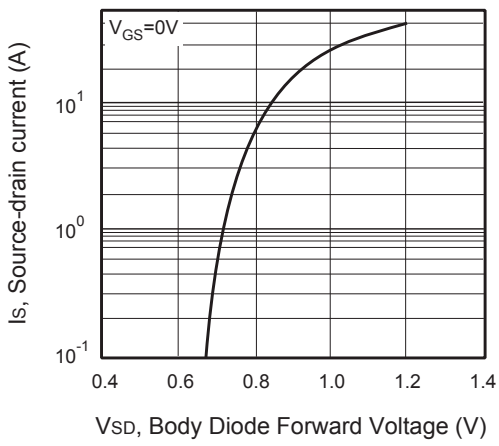

Figure 6. Body Diode Forward Voltage Variation with Source Current

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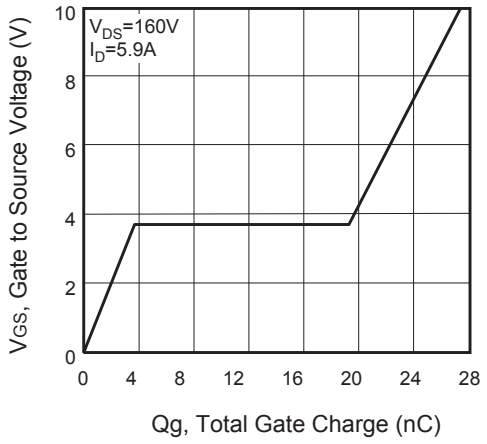

Figure 7. Gate Charge

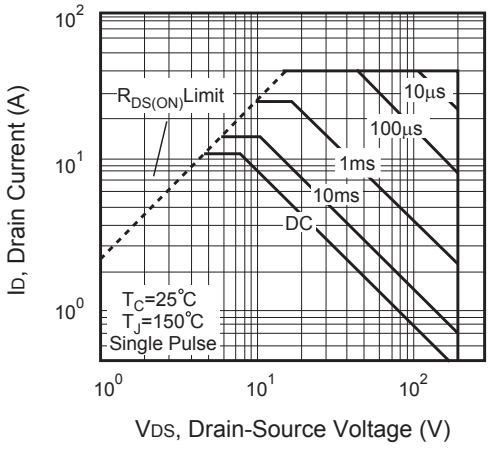

Figure 8. Maximum Safe Operating Area

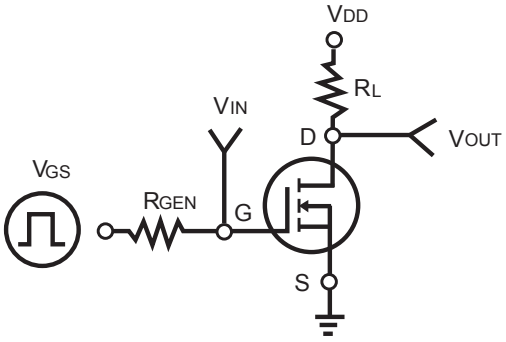

Figure 9. Switching Test Circuit

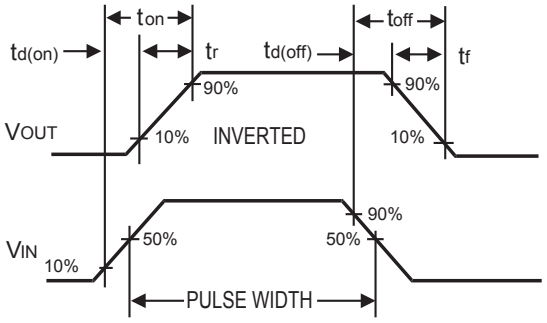

Figure 10. Switching Waveforms

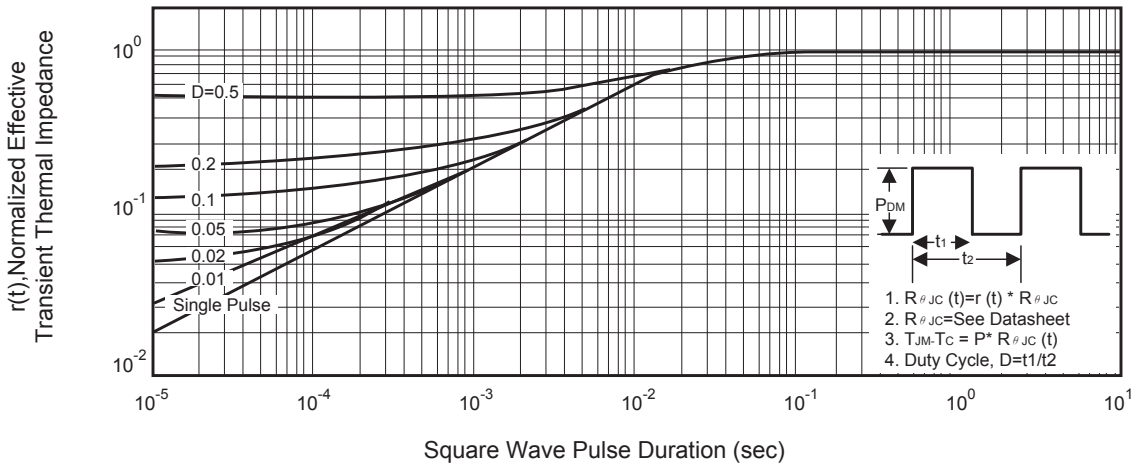

Figure 11. Normalized Thermal Transient Impedance Curve

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