



CEP15P15/CEB15P15 CEF15P15

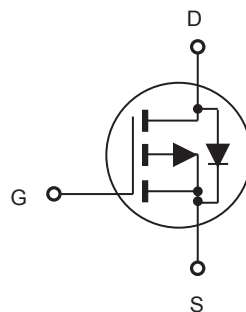
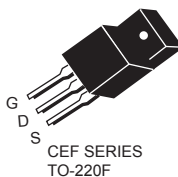
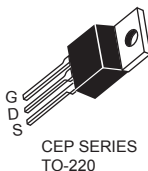
P-Channel Enhancement Mode Field Effect Transistor

PRELIMINARY

FEATURES

Type	V _{DSS}	R _{DS(ON)}	I _D	@V _{GS}
CEP15P15	-150V	0.24Ω	-15A	-10V
CEB15P15	-150V	0.24Ω	-15A	-10V
CEF15P15	-150V	0.24Ω	-15A ^d	-10V

- Super high dense cell design for extremely low R_{DS(ON)}.
- High power and current handling capability.
- Lead-free plating ; RoHS compliant.



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

Parameter	Symbol	Limit		Units
		TO-220/263	TO-220F	
Drain-Source Voltage	V _{DS}	-150		V
Gate-Source Voltage	V _{GS}	±20		V
Drain Current-Continuous @ T _C = 25 °C @ T _C = 100 °C	I _D	-15	-15 ^d	A
		- 9	- 9 ^d	A
Drain Current-Pulsed ^a	I _{DM} ^e	- 60	- 60 ^d	A
Maximum Power Dissipation @ T _C = 25°C - Derate above 25°C	P _D	96	34	W
		0.77	0.27	W/°C
Single Pulsed Avalanche Energy ^h	E _{AS}	250		mJ
Single Pulsed Avalanche Current ^h	I _{AS}	10		A
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 _{θJC}	1.3	3.7	°C/W
Thermal Resistance, Junction-to-Ambient	R _{θJA}	62.5	65	°C/W

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

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<http://www.cetsemi.com>



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CEF15P15

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	-150			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -150, V_{GS} = 0V$			-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	$V_{GS(th)}$	$V_{GS} = V_{DS}, I_D = 250\mu A$	-2		-4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -7.5A$		0.2	0.24	Ω
Gate input resistance	R_g	f=1MHz,open Drain		5.3		Ω
Dynamic Characteristics ^c						
Input Capacitance	C_{iss}	$V_{DS} = -25V, V_{GS} = 0V, \square$ f = 1.0 MHz		1245		pF
Output Capacitance	C_{oss}			175		pF
Reverse Transfer Capacitance	C_{rss}			35		pF
Switching Characteristics ^c						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -75V, I_D = -7.5A,$ $V_{GS} = -10V, R_{GEN} = 10\Omega$		18		ns
Turn-On Rise Time	t_r			8		ns
Turn-Off Delay Time	$t_{d(off)}$			63		ns
Turn-Off Fall Time	t_f			14		ns
Total Gate Charge	Q_g	$V_{DS} = -120V, I_D = -7.5A,$ $V_{GS} = 10V$		31		nC
Gate-Source Charge	Q_{gs}			5		nC
Gate-Drain Charge	Q_{gd}			12		nC
Drain-Source Diode Characteristics and Maximun Ratings						
Drain-Source Diode Forward Current	I_S				-15	A
Drain-Source Diode Forward Voltage ^b	V_{SD}	$V_{GS} = 0V, I_S = -15A$			-1.2	V
Notes : $\square$ a.Repetitive Rating : Pulse width limited by maximum junction temperature . b.Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$. $\square$ c.Guaranteed by design, not subject to production testing. $\square$ d.Limited only by maximum temperature allowed . e.Pulse width limited by safe operating area . $\square$ h.L = 5mH, $I_{AS} = 10A$, $V_{DD} = 25V$, $R_G = 25\Omega$, Starting $T_J = 25\text{ }^{\circ}C$						



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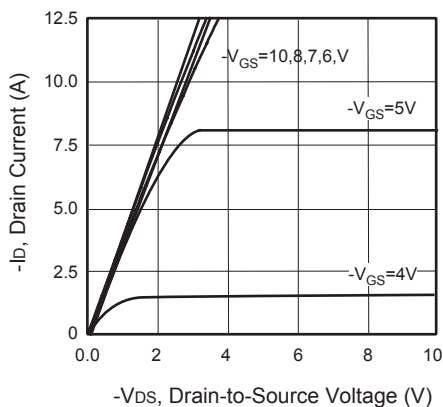


Figure 1. Output Characteristics

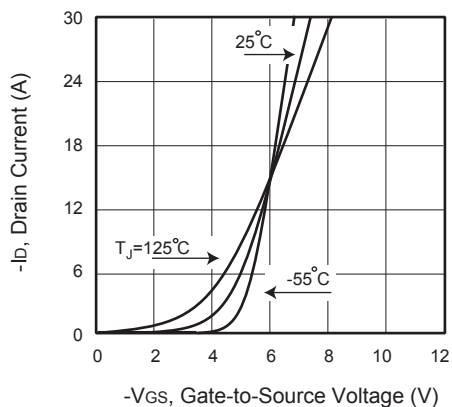


Figure 2. Transfer Characteristics

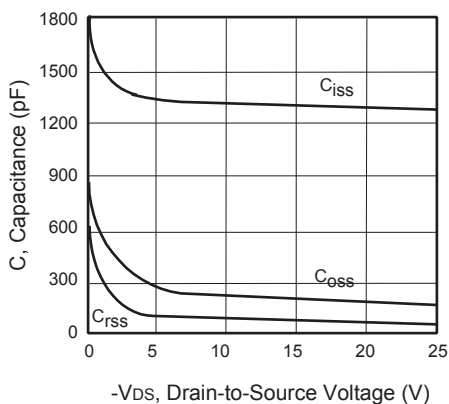


Figure 3. Capacitance

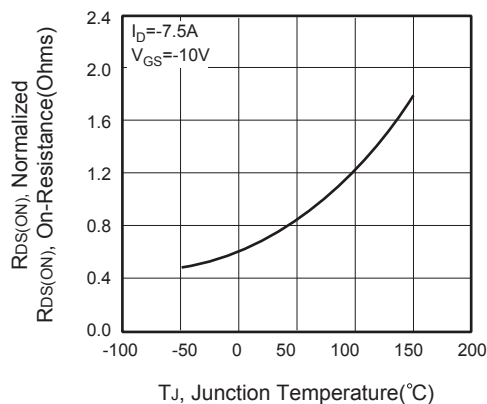


Figure 4. On-Resistance Variation with Temperature

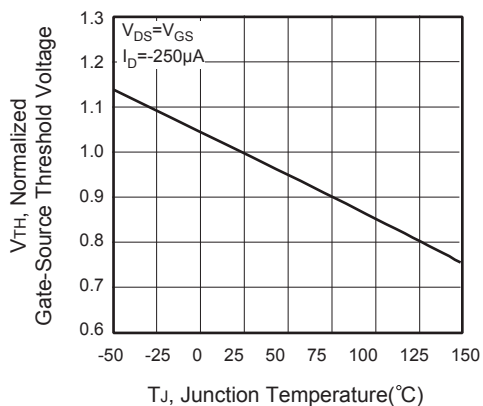


Figure 5. Gate Threshold Variation with Temperature

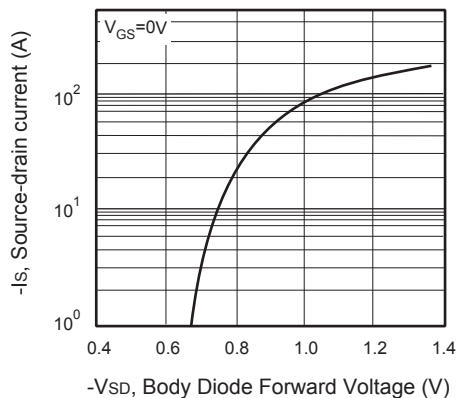


Figure 6. Body Diode Forward Voltage Variation with Source Current



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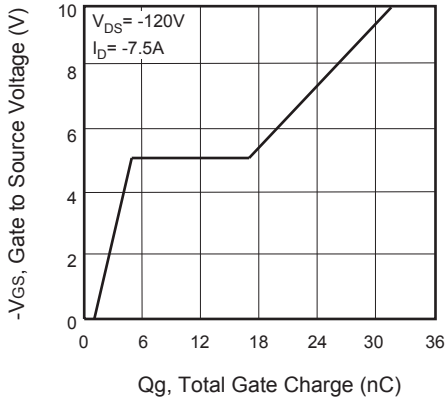


Figure 7. Gate Charge

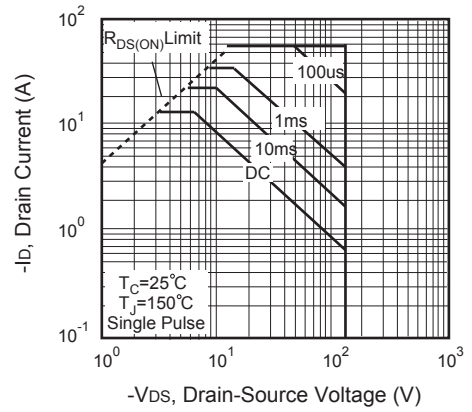


Figure 8. Maximum Safe Operating Area

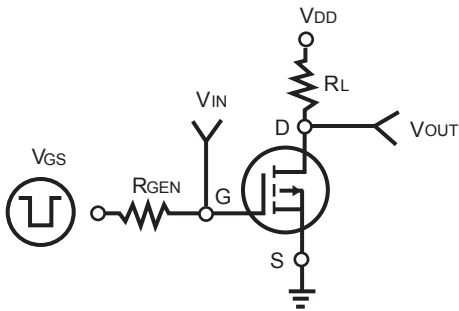


Figure 9. Switching Test Circuit



Figure 10. Switching Waveforms

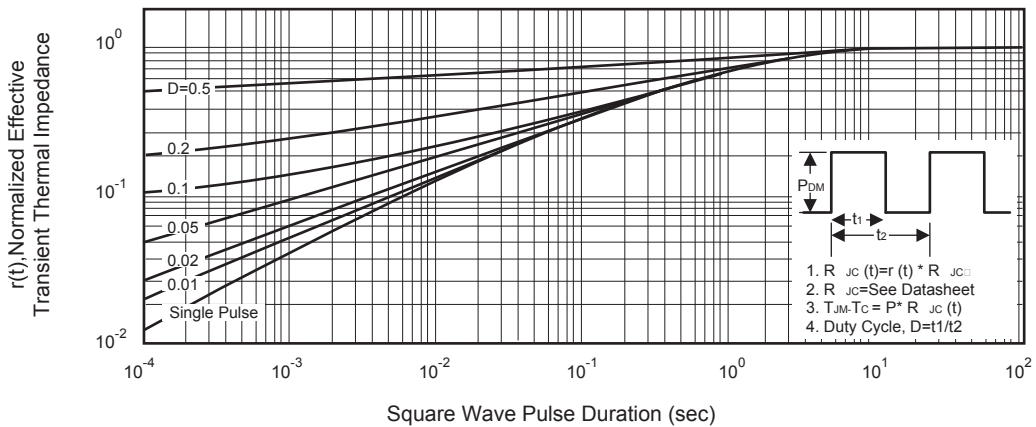


Figure 11. Normalized Thermal Transient Impedance Curve