CET

CEP83A3/CEB83A3

N-Channel Enhancement Mode Field Effect Transistor

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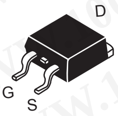
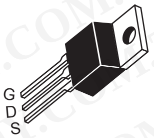
Http://www.100y.com.tw

FEATURES

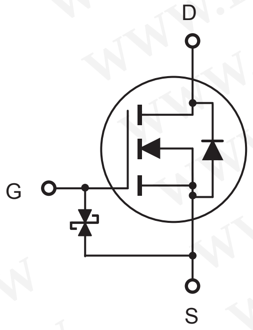
- 30V, 100A, $R_{DS(ON)}$ = 5.3mΩ @V_{GS} = 10V.
  $R_{DS(ON)}$ = 8.0mΩ @V_{GS} = 4.5V.
- Super high dense cell design for extremely low $R_{DS(ON)}$.
- High power and current handing capability.
- Lead free product is acquired.
- TO-220 & TO-263 package.



CEB SERIES
TO-263(DD-PAK)



CEP SERIES
TO-220



ABSOLUTE MAXIMUM RATINGS

T_C = 25°C unless otherwise noted

Parameter	Symbol	Limit	Units
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	100	A
Drain Current-Pulsed [a]	I_{DM}	400	A
Maximum Power Dissipation @ T_C = 25°C	P_D	100	W
- Derate above 25°C		0.67	W/°C
Operating and Store Temperature Range	T_J,T_{stg}	-55 to 175	°C

Thermal Characteristics

Parameter	Symbol	Limit	Units
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.5	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62.5	°C/W

Details are subject to change without notice .

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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	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 30V, V_{GS} = 0V			1	μA
Gate Body Leakage Current, Forward	I_{GSSF}	V_{GS} = 20V, V_{DS} = 0V			10	uA
Gate Body Leakage Current, Reverse	IGSSR	V_{GS} = -20V, V_{DS} = 0V			-10	uA
On Characteristics [b]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS} = V_{DS}, I_D = 250μA	1		3	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 50A		4.2	5.3	mΩ
		V_{GS} = 4.5V, I_D = 40A		6.0	8.0	mΩ
Dynamic Characteristics [c]						
Forward Transconductance	g_{FS}	V_{DS} = 10V, I_D = 15A		27		S
Input Capacitance	C_{iss}	V_{DS} = 15V, V_{GS} = 0V, f = 1.0 MHz		6350		pF
Output Capacitance	C_{oss}			980		pF
Reverse Transfer Capacitance	C_{rss}			600		pF
Switching Characteristics [c]						
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 15V, I_D = 1A, □ V_{GS} = 10V, R_{GEN} = 6Ω		24		ns
Turn-On Rise Time	t_r			22		ns
Turn-Off Delay Time	$t_{d(off)}$			209		ns
Turn-Off Fall Time	t_f			173		ns
Total Gate Charge	Q_g	V_{DS} = 15V, I_D = 16A, V_{GS} = 5V		53		nC
Gate-Source Charge	Q_{gs}			15		nC
Gate-Drain Charge	Q_{gd}			22		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			1.5	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.

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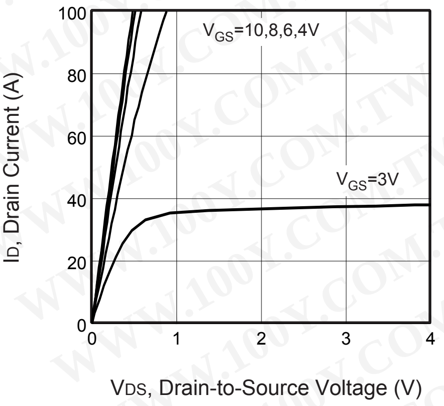

Figure 1. Output Characteristics

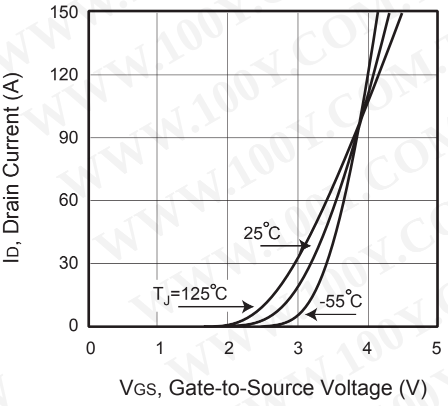

Figure 2. Transfer Characteristics

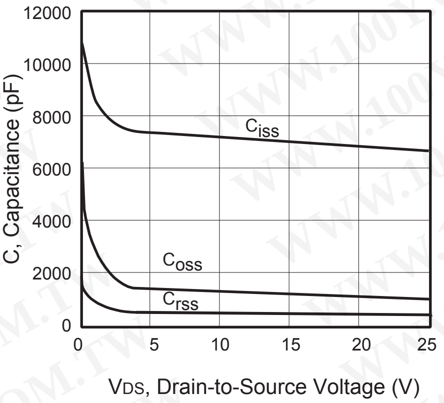

Figure 3. Capacitance

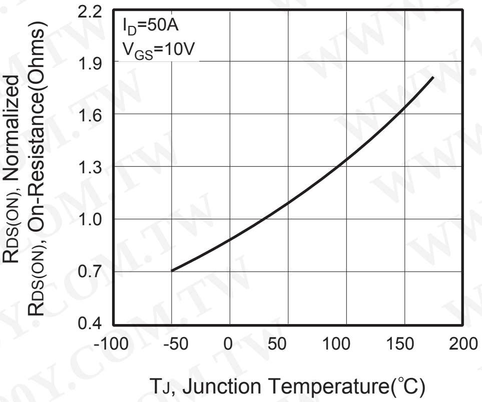

Figure 4. On-Resistance Variation with Temperature

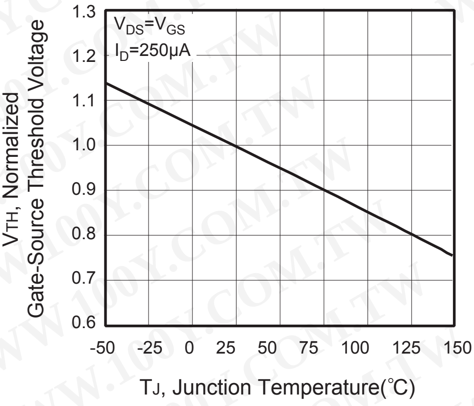

Figure 5. Gate Threshold Variation with Temperature

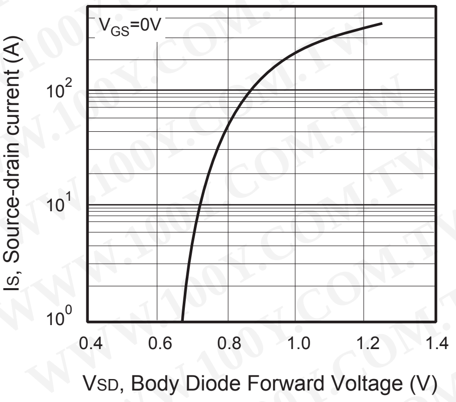

Figure 6. Body Diode Forward Voltage Variation with Source Current

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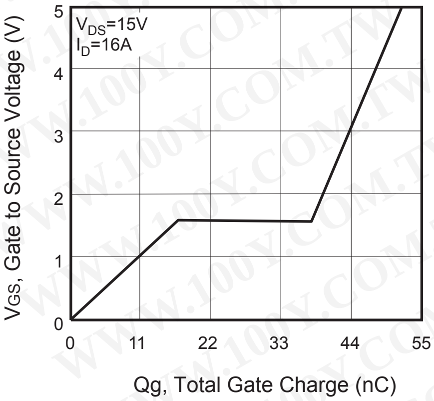

Figure 7. Gate Charge

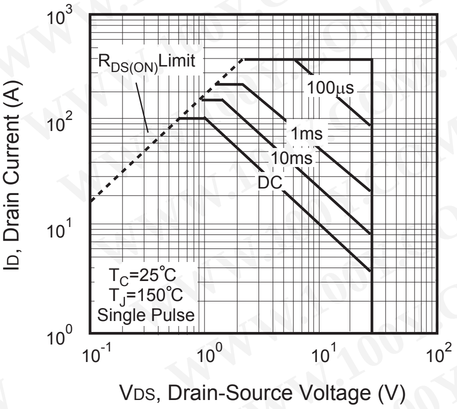

Figure 8. Maximum Safe Operating Area

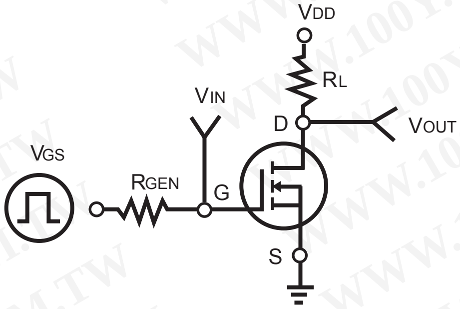

Figure 9. Switching Test Circuit

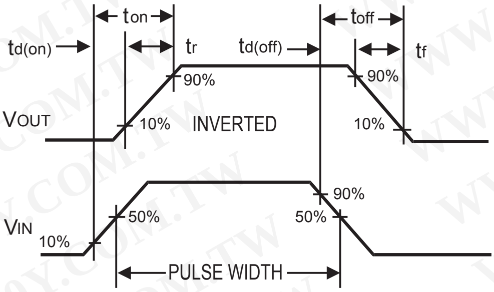

Figure 10. Switching Waveforms

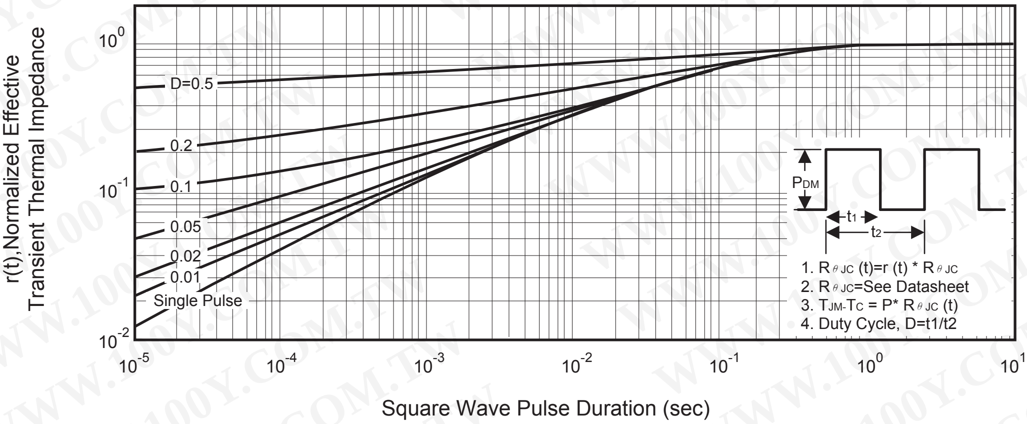

Figure 11. Normalized Thermal Transient Impedance Curve

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