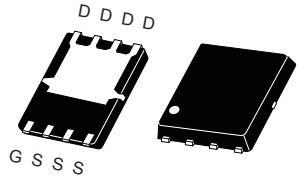
CEZ04R10

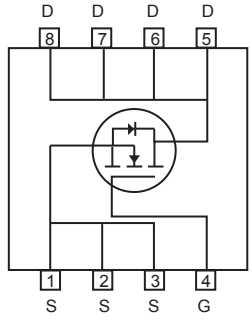
N-Channel Enhancement Mode Field Effect Transistor

PRELIMINARY

FEATURES

- 100V, 88A, $R_{DS(ON)}$ = 4.2mΩ @V_{GS} = 10V.
- Super high dense cell design for extremely low $R_{DS(ON)}$.
- High power and current handing capability.
- RoHS compliant.
- Surface mount Package.





PR-PACK (5*6)

ABSOLUTE MAXIMUM RATINGS T_A = 25°C unless otherwise noted

Parameter	Symbol	Limit	Units
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D @$R_{\theta JA}$	27	A
Drain Current-Continuous	I_D @$R_{\theta JC}$	88	A
Drain Current-Pulsed [a]	I_{DM}@$R_{\theta JA}$	108	A
Drain Current-Pulsed [a]	I_{DM} @$R_{\theta JC}$	352	A
Maximum Power Dissipation	P_D	66	W
Single Pulsed Avalanche Energy [e]	E_{AS}	180	mJ
Single Pulsed Avalanche Current [e]	I_{AS}	60	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	$R_{\theta JC}$	1.9	°C/W
Thermal Resistance, Junction-to-Ambient [b]	$R_{\theta JA}$	20	°C/W

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

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Electrical Characteristics T_A = 25°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	100			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 100V, 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 [c]						
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		3.6	4.2	mΩ
Dynamic Characteristics [d]						
Input Capacitance	C_{iss}	V_{DS} = 50V, V_{GS} = 0V, f = 1.0 MHz		2615		pF
Output Capacitance	C_{oss}			750		pF
Reverse Transfer Capacitance	C_{rss}			43		pF
Switching Characteristics [d]						
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 80V, I_D = 20A, V_{GS} = 10V, R_{GEN} = 6Ω		46		ns
Turn-On Rise Time	t_r			34		ns
Turn-Off Delay Time	$t_{d(off)}$			58		ns
Turn-Off Fall Time	t_f			32		ns
Total Gate Charge	Q_g	V_{DS} = 80V, I_D = 20A, V_{GS} = 10V		71		nC
Gate-Source Charge	Q_{gs}			14		nC
Gate-Drain Charge	Q_{gd}			36		nC
Drain-Source Diode Characteristics and Maximun Ratings						
Drain-Source Diode Forward Current [b]	I_S				55	A
Drain-Source Diode Forward Voltage [c]	V_{SD}	V_{GS} = 0V, I_S = 20A			1.2	V

Notes :
a.Repetitive Rating : Pulse width limited by maximum junction temperature.
b.Surface Mounted on FR4 Board, t ≤ 10 sec.
c.Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
d.Guaranteed by design, not subject to production testing.
e.L = 0.1mH, I_{AS} =60A, V_{DD} = 50V, R_G = 25Ω, Starting T_J = 25°C.

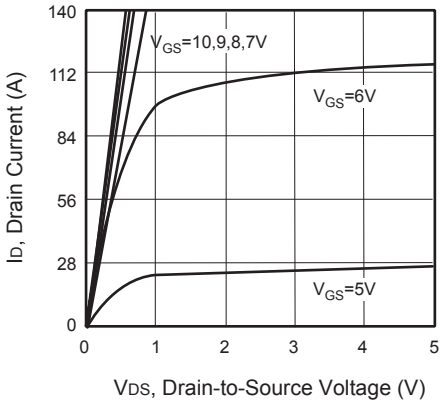


Figure 1. Output Characteristics

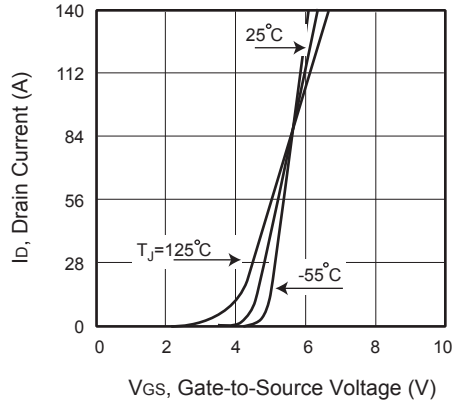


Figure 2. Transfer Characteristics

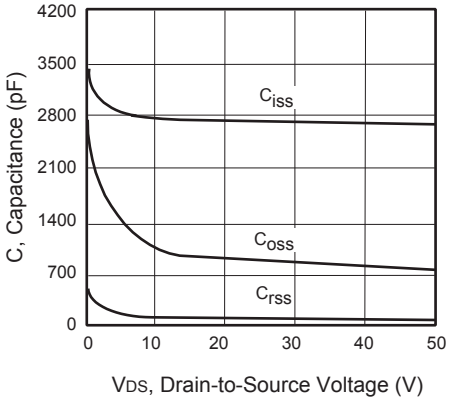


Figure 3. Capacitance

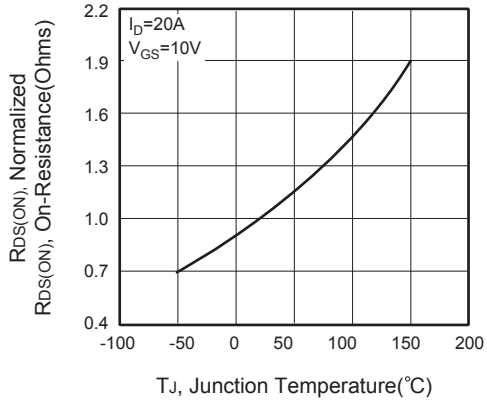


Figure 4. On-Resistance Variation with Temperature

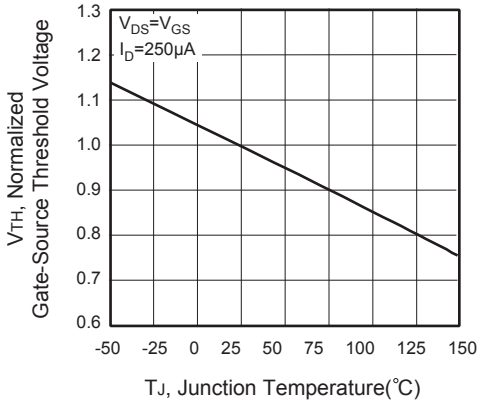


Figure 5. Gate Threshold Variation with Temperature

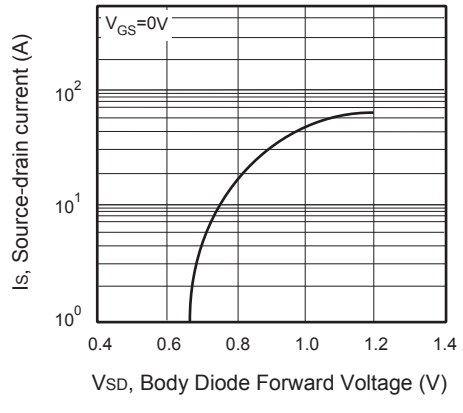


Figure 6. Body Diode Forward Voltage Variation with Source Current

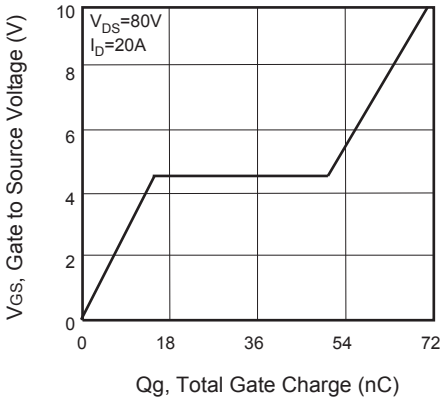


Figure 7. Gate Charge

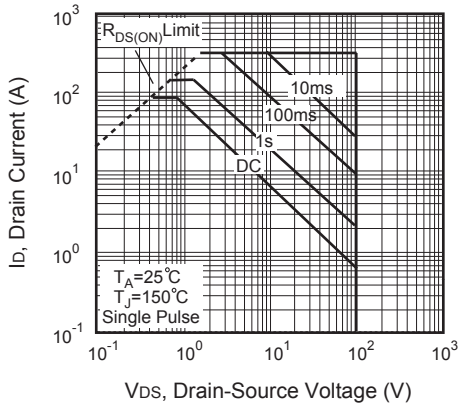


Figure 8. Maximum Safe Operating Area

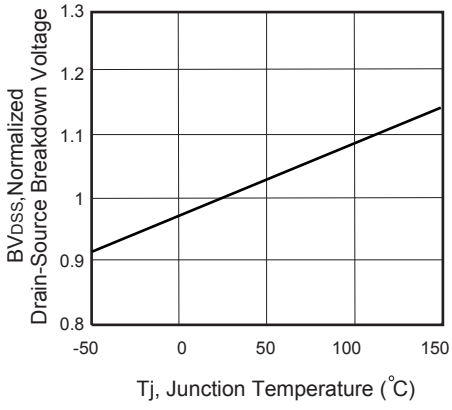


Figure 9. Breakdown Voltage Variation VS Temperature

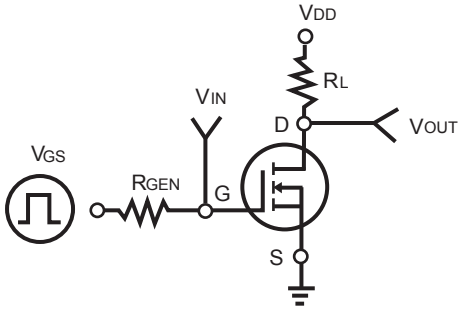


Figure 10. Switching Test Circuit

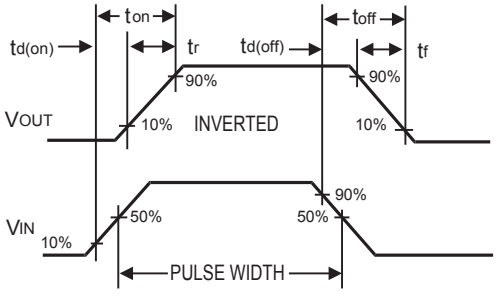


Figure 11. Switching Waveforms

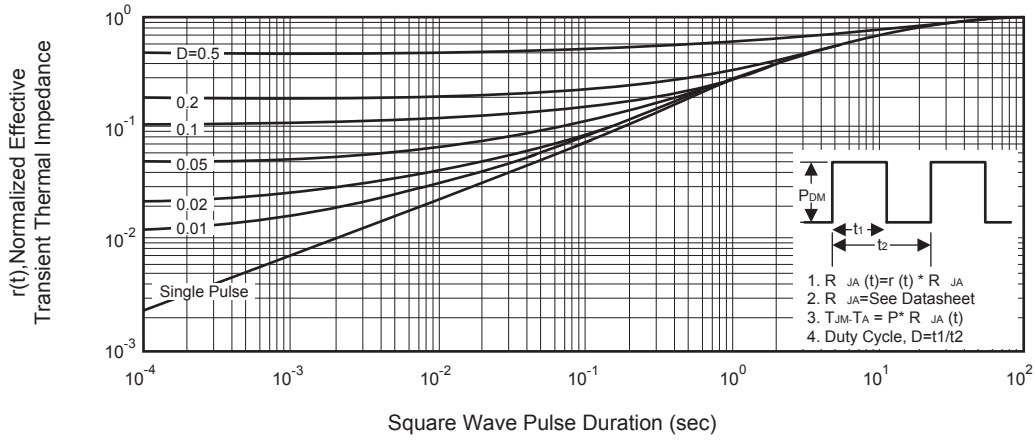
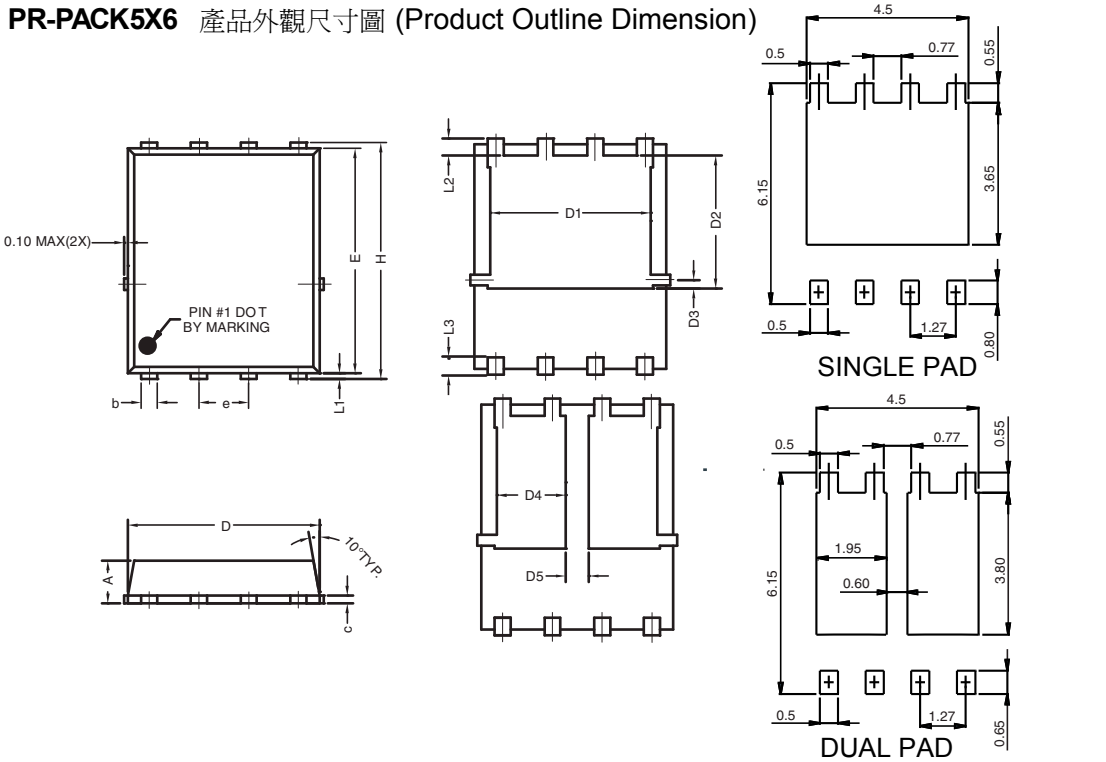


Figure 12. Normalized Thermal Transient Impedance Curve

PR-PACK5X6 產品外觀尺寸圖 (Product Outline Dimension)



SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.800	1.170	0.031	0.046
b	0.340	0.490	0.013	0.019
c	0.20	0.34	0.008	0.013
D	4.800	5.100	0.009	0.011
D1	3.800	4.200	0.150	0.165
D2	3.180	3.500	0.125	0.138
D3	0.150	0.360	0.006	0.142
D4	1.600	1.800	0.063	0.071
D5	0.500	0.700	0.020	0.028
E	5.650	5.900	0.222	0.232
e	1.270 TYP		0.050 TYP	
H	5.900	6.150	0.232	0.242
L1	0.050	0.250	0.002	0.010
L2	0.380	0.620	0.015	0.024
L3	0.380	0.800	0.015	0.031