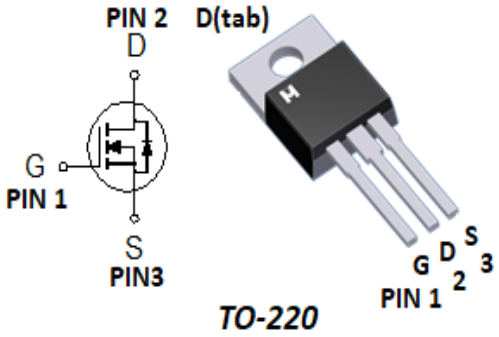
杰力科技股份有限公司
Excelliance MOS Corporation

EMD14N10E

N-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV_{DSS}	100V
$R_{DSON\ (MAX.)}$	14mΩ
I_D	85A



UIS, Rg 100% Tested

RoHS & Halogen Free & TSCA Complianet

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		V_{GS}	±30	V
Continuous Drain Current	T_C = 25 °C	I_D	85	A
	T_C = 100 °C		60	
Pulsed Drain Current[1]		I_{DM}	250	
Avalanche Current		I_{AS}	40	
Avalanche Energy	L = 0.1mH, I_{AS}=40A, RG=25Ω	E_{AS}	80	mJ
Repetitive Avalanche Energy[2]	L = 0.05mH	E_{AR}	40	
Power Dissipation	T_C = 25 °C	P_D	147	W
	T_C = 100 °C		58	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case	$R_{\theta JC}$		0.85	°C / W
Junction-to-Ambient	$R_{\theta JA}$		62.5	

[1]Pulse width limited by maximum junction temperature.

[2]Duty cycle ≤ 1%

[3]The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	100			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	2.0	3.0	4.0	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±30V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 80V, V_{GS} = 0V			1	μA
		V_{DS} = 70V, V_{GS} = 0V, T_J = 125 °C			25	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = 10V, V_{GS} = 10V	85			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 40A		12	14	mΩ
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 20A		42		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		6557		pF
Output Capacitance	C_{oss}			417		
Reverse Transfer Capacitance	C_{rss}			122		
Gate Resistance	R_g	V_{GS} = 15mV, V_{DS} = 0V, f = 1MHz		1.5		Ω
Total Gate Charge[1,2]	Q_g	V_{DS} = 50V, V_{GS} = 10V, I_D = 20A		64.7		nC
Gate-Source Charge[1,2]	Q_{gs}			24.4		
Gate-Drain Charge[1,2]	Q_{gd}			18.1		
Turn-On Delay Time[1,2]	$t_{d(on)}$	V_{DS} = 50V, I_D = 1A, V_{GS} = 10V, R_{GS} = 6Ω		25		nS
Rise Time[1,2]	t_r			120		
Turn-Off Delay Time[1,2]	$t_{d(off)}$			100		
Fall Time[1,2]	t_f			150		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_C = 25 °C)						
Continuous Current	I_S				85	A
Pulsed Current[3]	I_{SM}				250	
Forward Voltage[1]	V_{SD}	I_F = 20A, V_{GS} = 0V			1.3	V
Reverse Recovery Time	t_{rr}	I_F = 25A, dI_F/dt = 100A / μS		150		nS
Reverse Recovery Charge	Q_{rr}			450		nC

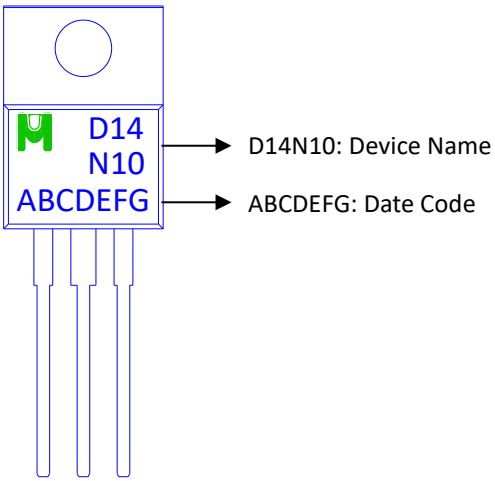
[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

[2]Independent of operating temperature.

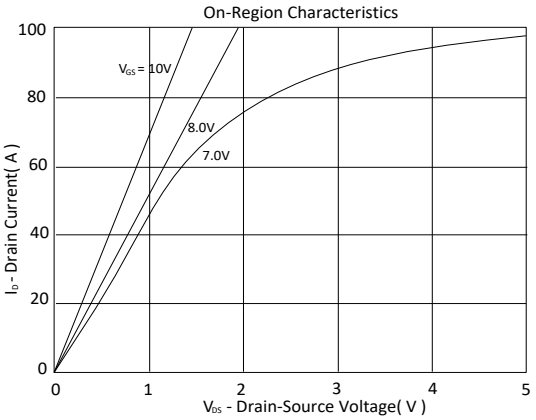
[3]Pulse width limited by maximum junction temperature.

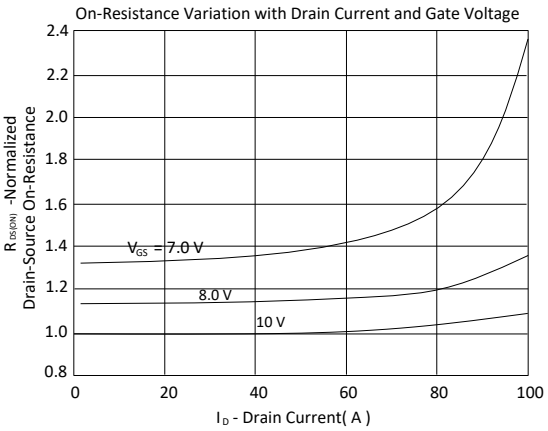
Ordering & Marking Information:

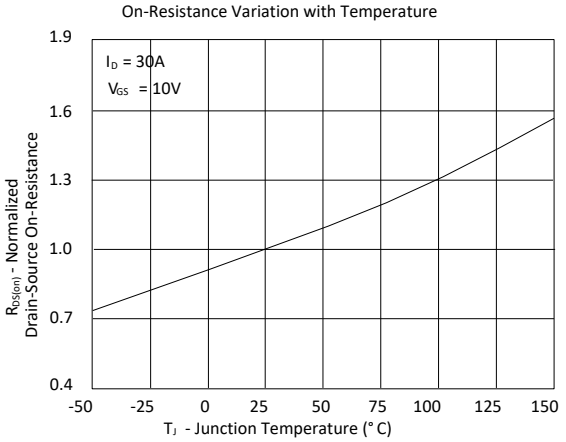
Device Name: EMD14N10E for TO-220

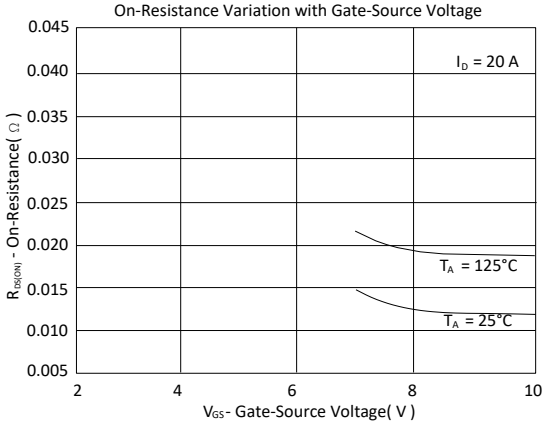


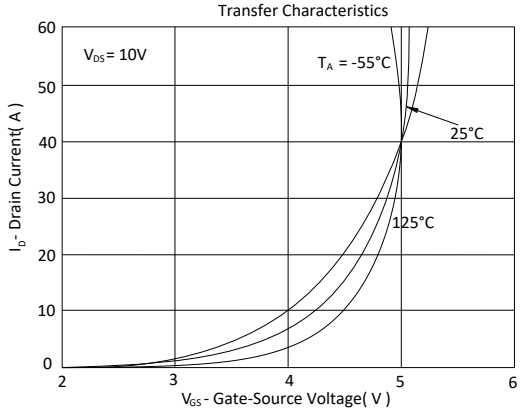
TYPICAL CHARACTERISTICS

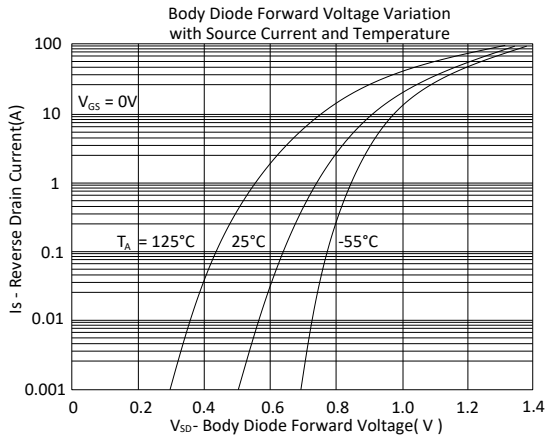




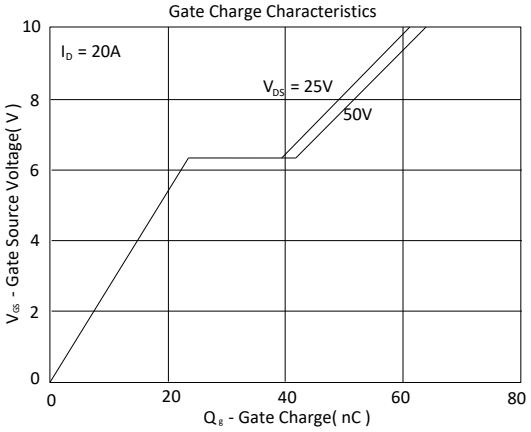




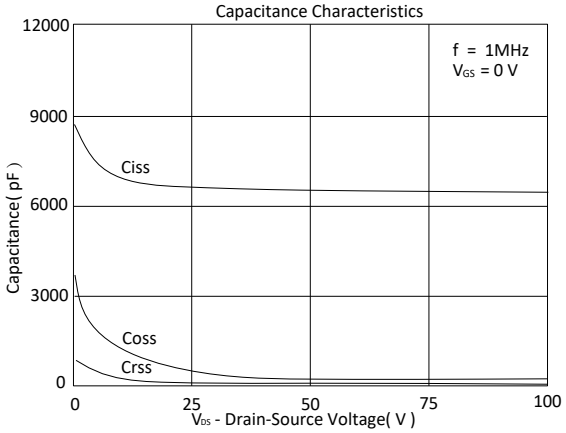




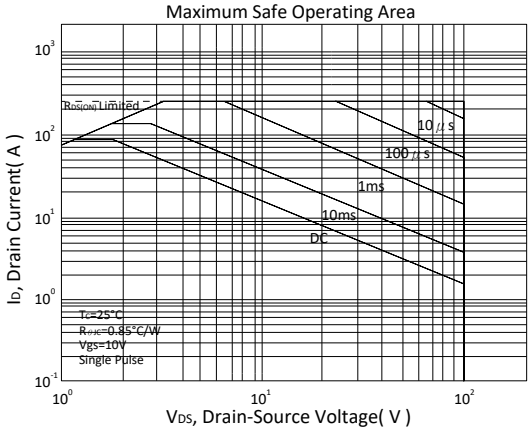
Gate Charge Characteristics



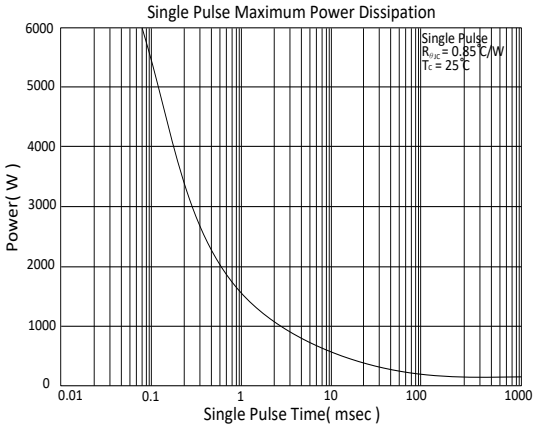
Capacitance Characteristics



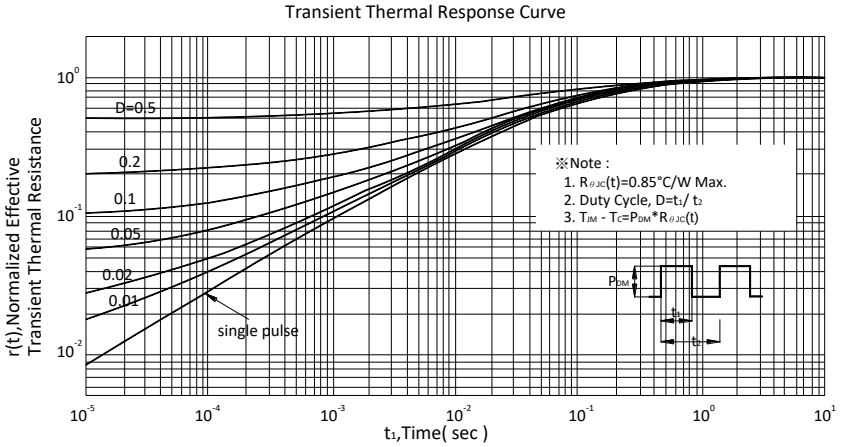
Maximum Safe Operating Area



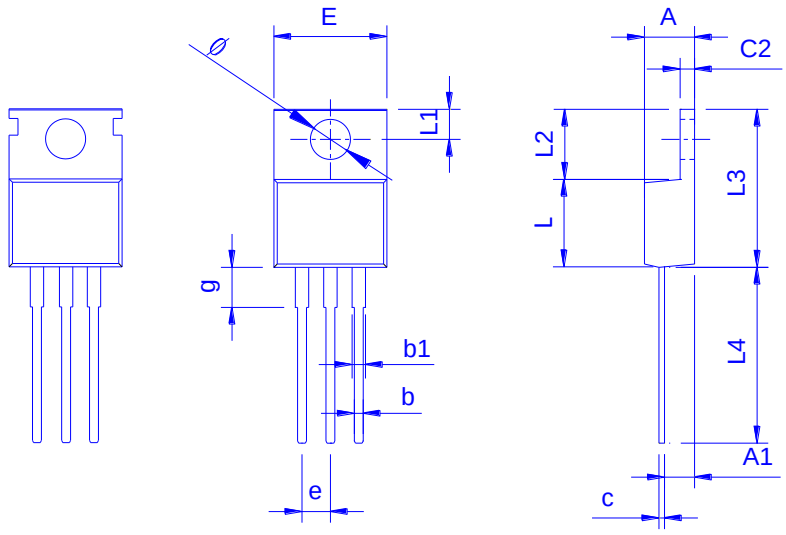
Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



Outline Drawing



Dimension in mm

Dimension	A	A1	b	b1	c	c2	E	L	L1	L2	L3	L4	Ø	e	g
Min.	4.240	2.250	0.700	1.170	0.310	1.150	9.910	8.500	2.590	6.100	14.700	12.700	3.400	2.440	2.850
Typ.	4.440	2.400	0.800	1.550	0.500	1.270	10.160	8.920	2.800	6.300	15.370	13.720	3.840	2.540	3.800
Max.	4.700	2.820	0.910	1.750	0.650	1.400	10.360	9.750	3.250	6.800	16.900	13.970	3.935	2.640	4.000

◆ Tube Information:50pcs/Tube (1000pcs/Box)