

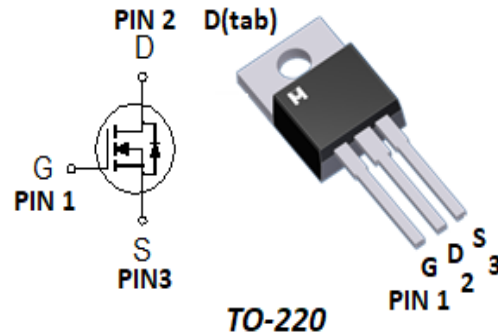
N-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV <sub>DSS</sub>	100V
R <sub>DS(on)</sub> (MAX.)	7.5mΩ
I <sub>D</sub>	130A

UIS, R<sub>g</sub> 100% Tested

RoHS & Halogen Free & TSCA Compliant



ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25 °C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		V <sub>GS</sub>	±30	V
Continuous Drain Current	T <sub>C</sub> = 25 °C	I <sub>D</sub>	130	A
	T <sub>C</sub> = 100 °C		93	
Pulsed Drain Current <sup>1</sup>		I <sub>DM</sub>	540	
Avalanche Current		I <sub>AS</sub>	90	
Avalanche Energy	L = 0.1mH, I <sub>AS</sub> =90A, R <sub>G</sub> =25Ω	E <sub>AS</sub>	405	mJ
Repetitive Avalanche Energy <sup>2</sup>	L = 0.05mH	E <sub>AR</sub>	202	
Power Dissipation	T <sub>C</sub> = 25 °C	P <sub>D</sub>	227	W
	T <sub>C</sub> = 100 °C		90	
Operating Junction & Storage Temperature Range		T <sub>j</sub> , T <sub>stg</sub>	-55 to 150	°C

100% UIS testing in condition of V<sub>D</sub>=50V, L=0.1mH, V<sub>G</sub>=10V, I<sub>L</sub>=60A, Rated V<sub>DS</sub>=100V N-CH

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case	R <sub>θJC</sub>		0.55	°C / W
Junction-to-Ambient	R <sub>θJA</sub>		62.5	

<sup>1</sup>Pulse width limited by maximum junction temperature.

<sup>2</sup>Duty cycle ≤ 1%

<sup>3</sup>The value of R<sub>θJA</sub> is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with T<sub>A</sub>=25°C.



ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	100			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	2	3	4	
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±30V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 80V, V <sub>GS</sub> = 0V			1	μA
		V <sub>DS</sub> = 70V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 125 °C			25	
On-State Drain Current <sup>1</sup>	I <sub>D(ON)</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 10V	130			A
Drain-Source On-State Resistance <sup>1</sup>	R <sub>DS(ON)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 35A		6.3	7.5	mΩ
Forward Transconductance <sup>1</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 25V, I <sub>D</sub> = 35A		60		S
<b>DYNAMIC</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 50V, f = 1MHz		5587		pF
Output Capacitance	C <sub>oss</sub>			428		
Reverse Transfer Capacitance	C <sub>rss</sub>			23		
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> = 15mV, V <sub>DS</sub> = 0V, f = 1MHz		1.7		Ω
Total Gate Charge <sup>1,2</sup>	Q <sub>g</sub>	V <sub>DS</sub> = 50V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 20A		64		nC
Gate-Source Charge <sup>1,2</sup>	Q <sub>gs</sub>			34		
Gate-Drain Charge <sup>1,2</sup>	Q <sub>gd</sub>			11		
Turn-On Delay Time <sup>1,2</sup>	t <sub>d(on)</sub>	V <sub>DS</sub> = 50V, I <sub>D</sub> = 1A, V <sub>GS</sub> = 10V, R <sub>GS</sub> = 6Ω		70		nS
Rise Time <sup>1,2</sup>	t <sub>r</sub>			150		
Turn-Off Delay Time <sup>1,2</sup>	t <sub>d(off)</sub>			100		
Fall Time <sup>1,2</sup>	t <sub>f</sub>			170		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>C</sub> = 25 °C)</b>						
Continuous Current	I <sub>S</sub>				130	A
Pulsed Current <sup>3</sup>	I <sub>SM</sub>				540	
Forward Voltage <sup>1</sup>	V <sub>SD</sub>	I <sub>F</sub> = 20A, V <sub>GS</sub> = 0V			1.3	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 20A, dI <sub>F</sub> /dt = 100A / μS		50		nS
Reverse Recovery Charge	Q <sub>rr</sub>				170	

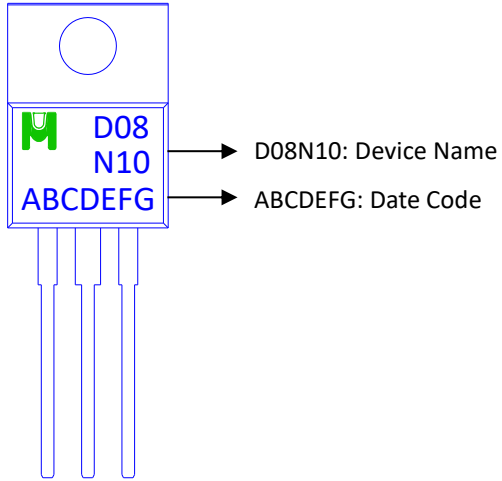
<sup>1</sup>Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

<sup>2</sup>Independent of operating temperature.

<sup>3</sup>Pulse width limited by maximum junction temperature.

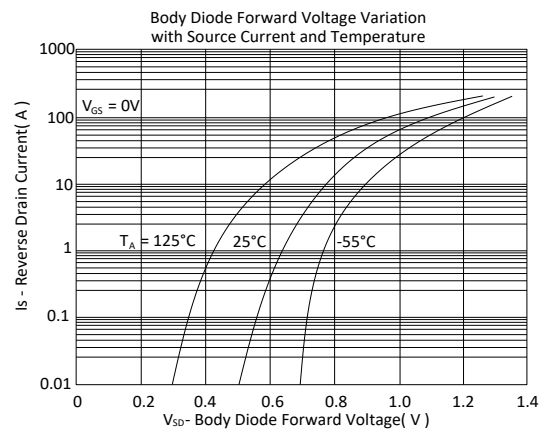
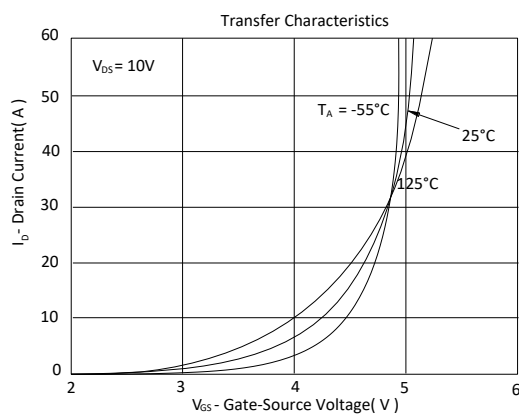
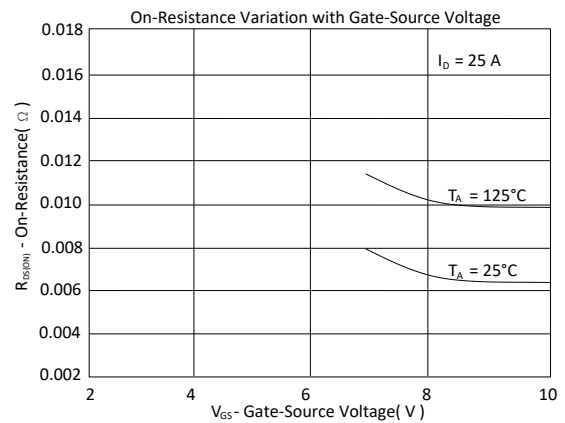
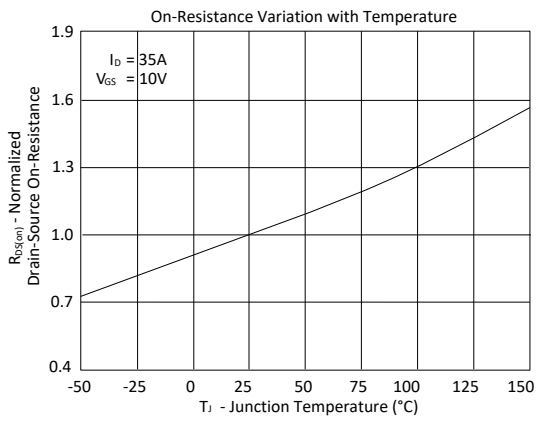
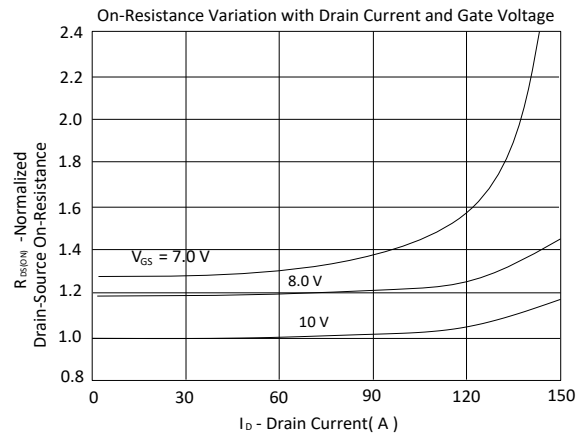
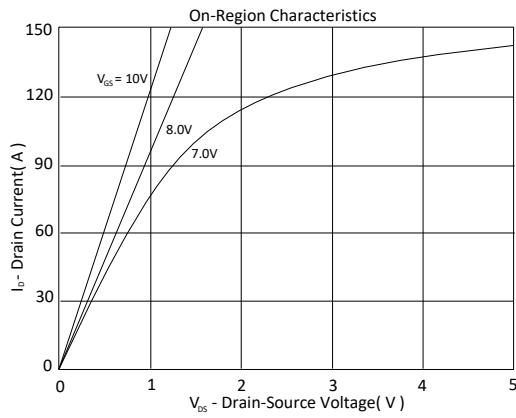
Ordering & Marking Information:

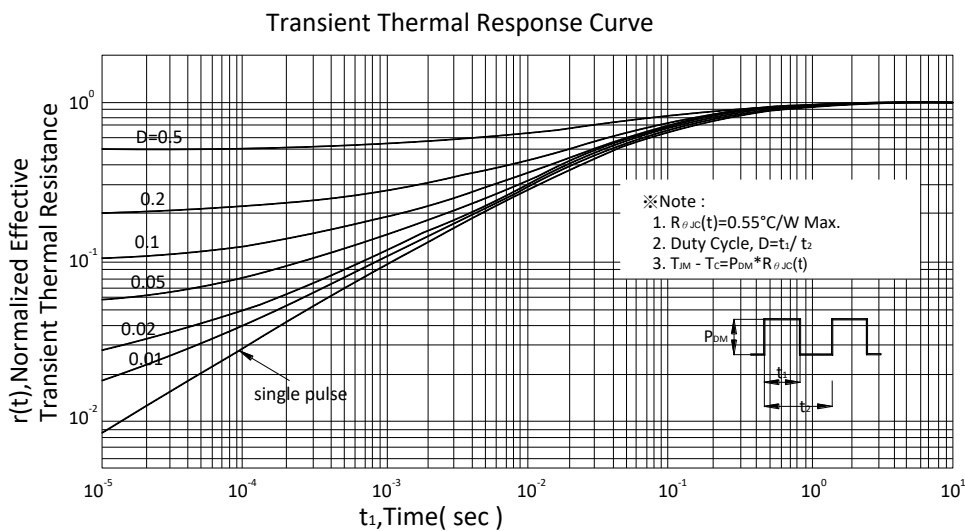
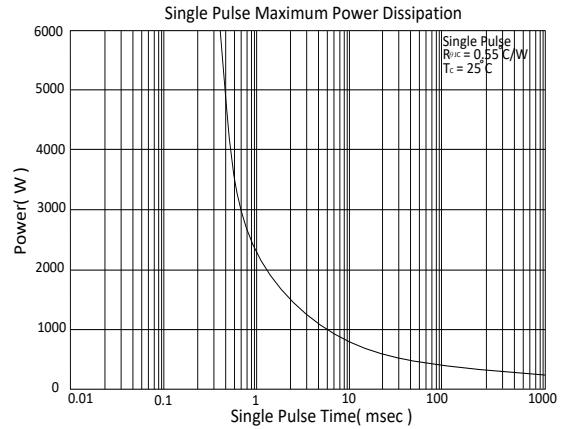
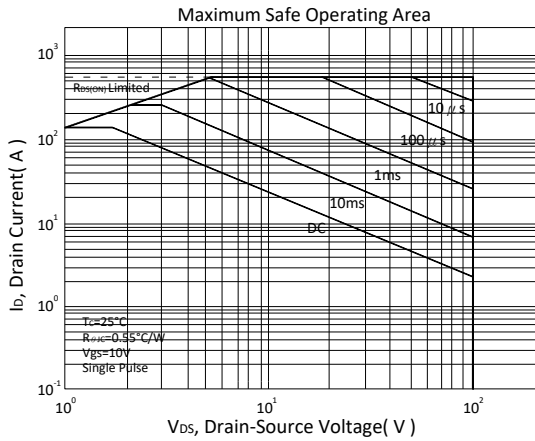
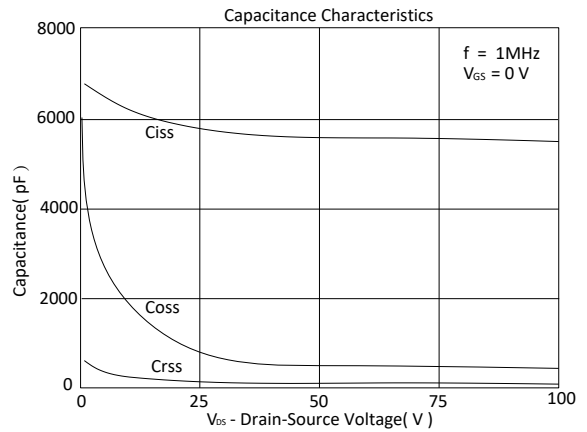
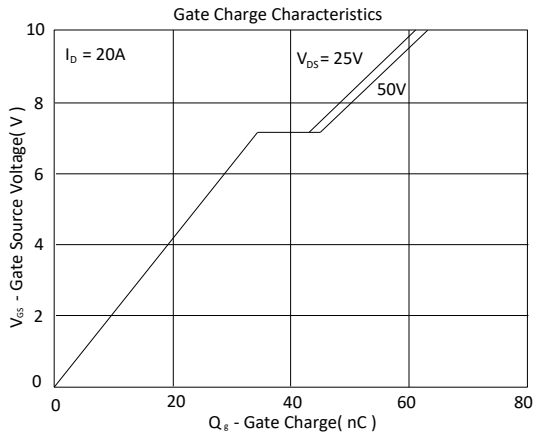
Device Name: EMD08N10E for TO-220





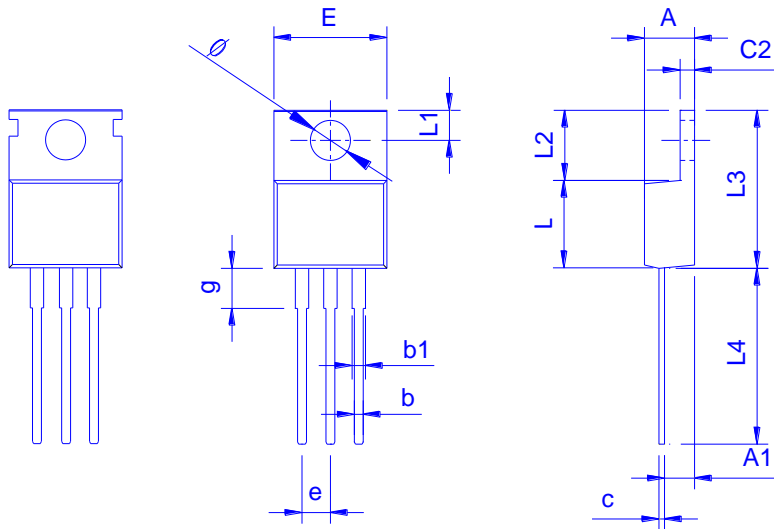
TYPICAL CHARACTERISTICS







Outline Drawing



Dimension in mm

Dimension	A	A1	b	b1	c	c2	E	L	L1	L2	L3	L4	∅	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)

