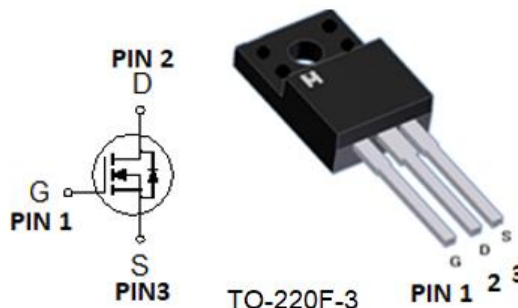


Single N-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV_{DSS}	150V
$R_{DS(on)} (MAX.)$	50m Ω
I_D	22A

Pin Description:



Single N Channel MOSFET

UIS, Rg 100% Tested

Pb-Free Lead Plating & Halogen Free



ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Drain-Source Voltage		V_{DSS}	150	V
Gate-Source Voltage		V_{GS}	± 30	V
Continuous Drain Current	$T_C = 25^\circ\text{C}$	I_D	22	A
	$T_C = 100^\circ\text{C}$		13	
Pulsed Drain Current ¹		I_{DM}	88	
Avalanche Current		I_{AS}	18	
Avalanche Energy	$L = 0.2\text{mH}, I_D = 18\text{A}, R_G = 25\Omega$	E_{AS}	32.4	mJ
Repetitive Avalanche Energy ²	$L = 0.1\text{mH}$	E_{AR}	16.2	
Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	35	W
	$T_C = 100^\circ\text{C}$		14	
Operating Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case	$R_{\theta JC}$		3.5	$^\circ\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		62.5	

¹Pulse width limited by maximum junction temperature.

²Duty cycle $\leq 1\%$

³Pulsed drain current rating is package limited.

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

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	150			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.5	2.5	4.0	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 30V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 120V, V_{GS} = 0V$			1	μA
		$V_{DS} = 100V, V_{GS} = 0V, T_J = 125^\circ C$			25	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 10V, V_{GS} = 10V$	22			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 20A$		40	50	mΩ
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 20A$		40		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$		4905		pF
Output Capacitance	C_{oss}			238		
Reverse Transfer Capacitance	C_{rss}			200		
Gate Resistance	R_g	$V_{GS} = 15mV, V_{DS} = 0V, f = 1MHz$		2.0		Ω
Total Gate Charge ^{1,2}	Q_g	$V_{DS} = 80V, V_{GS} = 10V,$ $I_D = 20A$		67.5		nC
Gate-Source Charge ^{1,2}	Q_{gs}			12.7		
Gate-Drain Charge ^{1,2}	Q_{gd}			16.6		
Turn-On Delay Time ^{1,2}	$t_{d(on)}$	$V_{DS} = 75V,$ $I_D = 1A, V_{GS} = 10V, R_{GS} = 6\Omega$		20		nS
Rise Time ^{1,2}	t_r			18		
Turn-Off Delay Time ^{1,2}	$t_{d(off)}$			40		
Fall Time ^{1,2}	t_f			18		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _c = 25 °C)						
Continuous Current	I_S				22	A
Pulsed Current ³	I_{SM}				88	
Forward Voltage ¹	V_{SD}	$I_F = I_S, V_{GS} = 0V$			1.3	V
Reverse Recovery Time	t_{rr}	$I_F = 25A, dI_F/dt = 100A / \mu S$		120		nS
Reverse Recovery Charge	Q_{rr}			380		nC

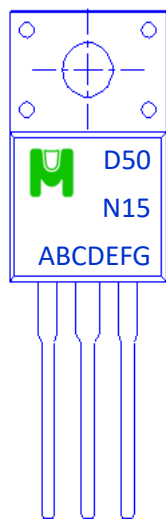
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

Ordering & Marking Information:

Device Name: EMD50N15F for TO-220F



→ D50N15: Device Name

→ ABCDEFG: Date Code

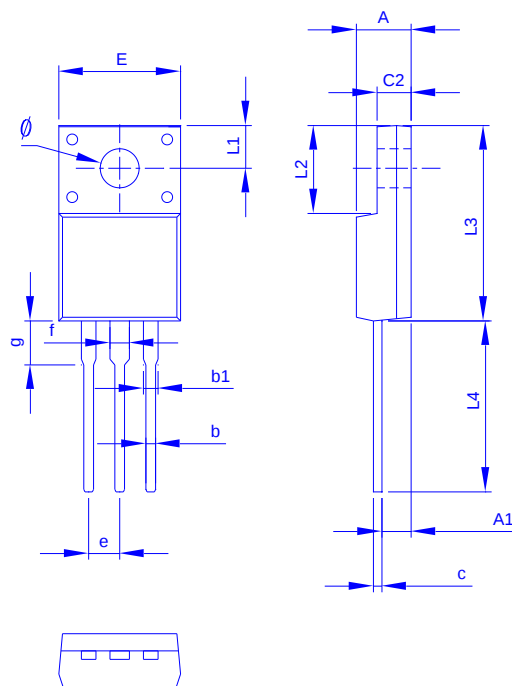
A: Assembly House

B: Year(A:2008 B:2009 C:2010....)

C: Month(A:01 B:02 C:03 D:04 E:05 F:06 G:07 H:08 I:09 J:10 K:11 L:12)

DEFG: Serial No.

Outline Drawing

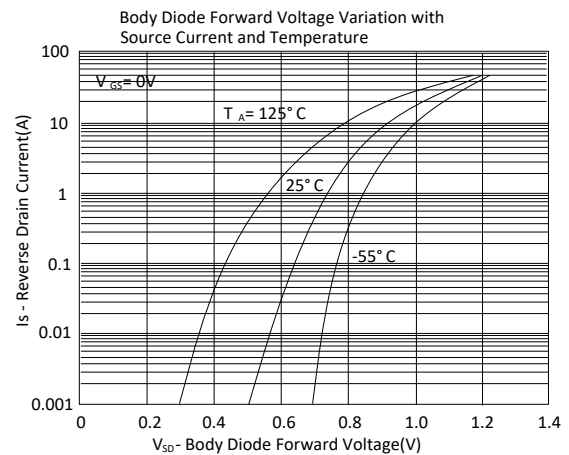
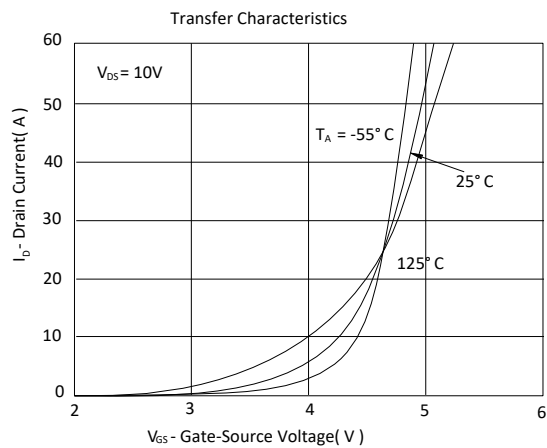
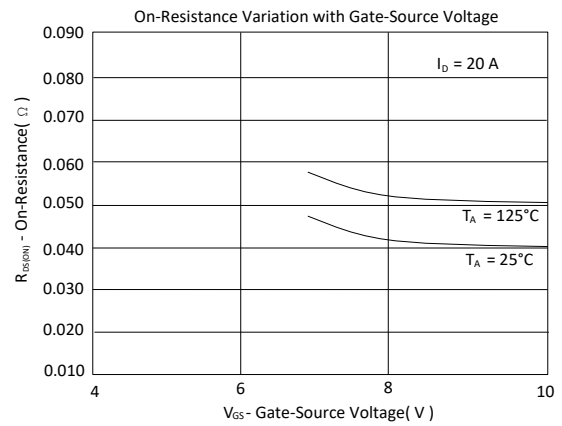
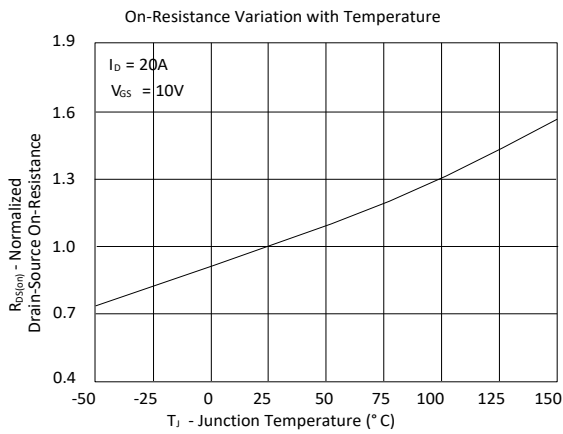
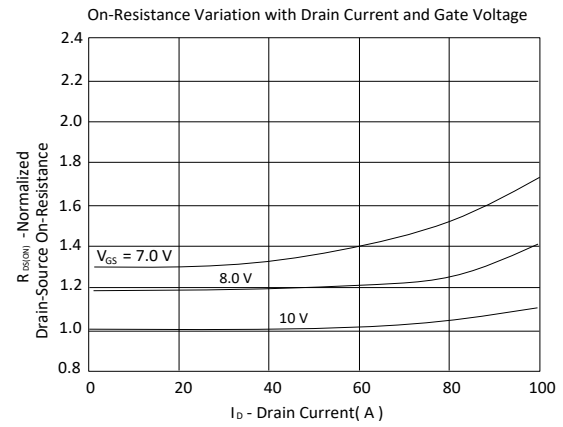
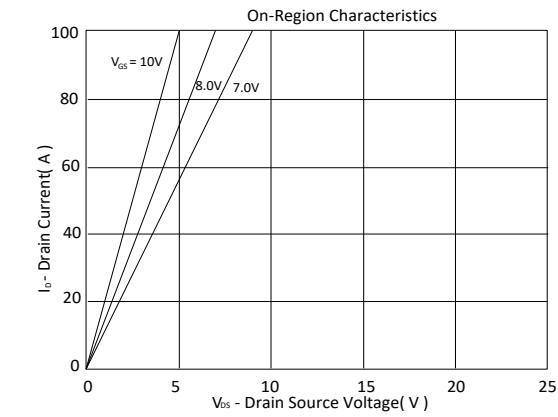


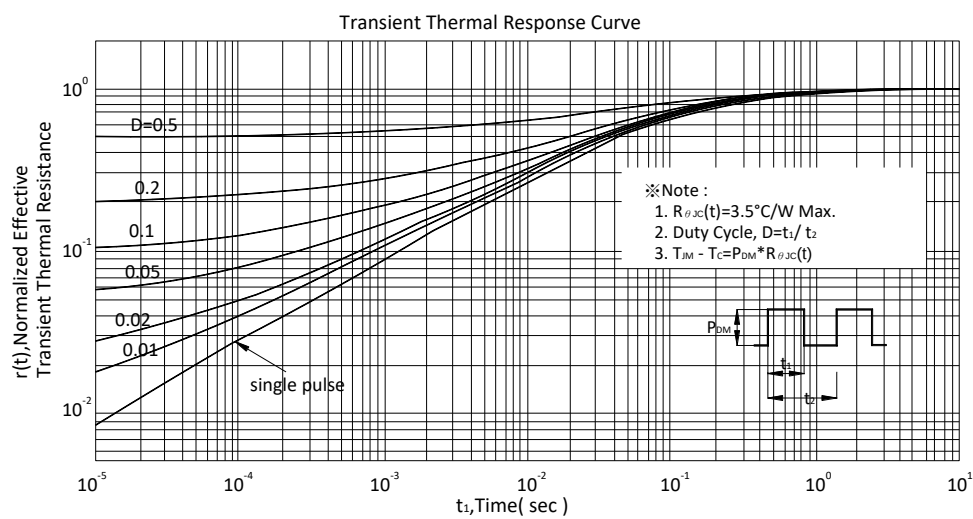
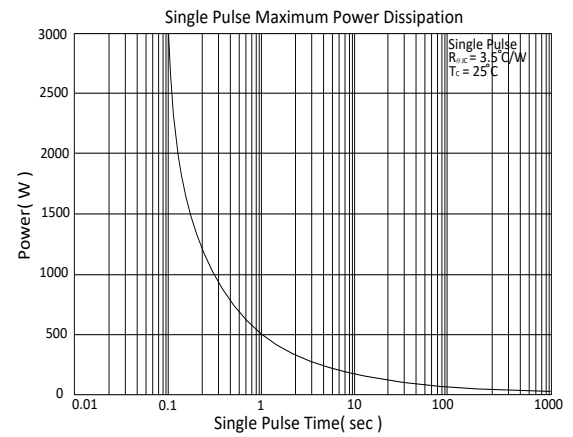
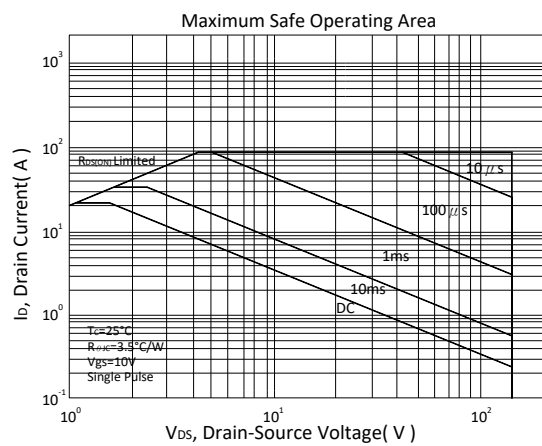
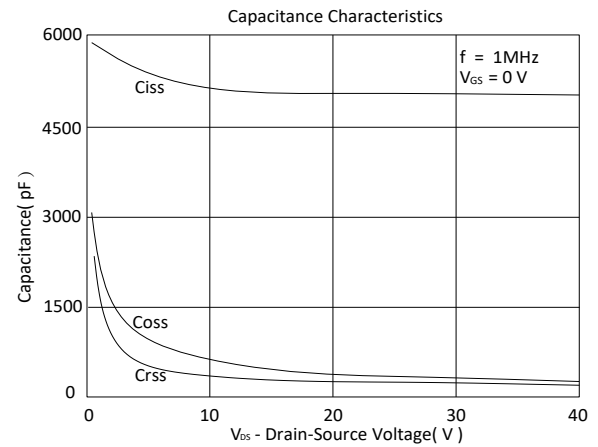
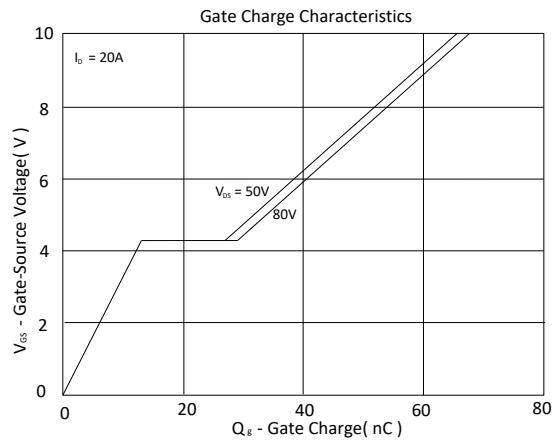
Dimension in mm

Dimension	A	A1	b	b1	c	c2	E	L1	L2	L3	L4	∅	e	f	g
Min.	4.3	2.49	0.5	1.1	0.4	2.34	9.96	2.7	6.48	14.8	12.65	3	2.44	1.17	2.93
Typ.	4.5	2.59	0.8	1.3	0.5	2.54	10.1	3.25	6.68	15.87	12.98	3.1	2.54	1.28	3.03
Max.	4.9	2.96	0.95	1.6	0.75	3.2	10.36	3.45	6.9	16.2	13.5	3.38	2.64	1.75	4



TYPICAL CHARACTERISTICS





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

