

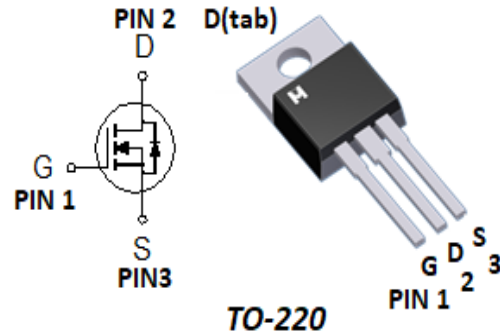
N-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV_{DSS}	100V
$R_{DS(on) (MAX.)}$	6.5m Ω
I_D	135A

UIS, Rg 100% Tested

RoHS & Halogen Free & TSCA Compliant



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		V_{GS}	± 30	V
Continuous Drain Current	$T_c = 25\text{ }^\circ\text{C}$	I_D	135	A
	$T_c = 100\text{ }^\circ\text{C}$		97	
Pulsed Drain Current ¹		I_{DM}	540	
Avalanche Current		I_{AS}	75	
Avalanche Energy	$L = 0.1\text{mH}, I_D = 75\text{A}, R_G = 25\text{ }\Omega$	E_{AS}	281	mJ
Repetitive Avalanche Energy ²	$L = 0.05\text{mH}$	E_{AR}	140	
Power Dissipation	$T_c = 25\text{ }^\circ\text{C}$	P_D	227	W
	$T_c = 100\text{ }^\circ\text{C}$		90	
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	$R_{\theta JC}$		0.55	$^\circ\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		62.5	

¹Pulse width limited by maximum junction temperature.

²Duty cycle $\leq 1\%$

³The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.



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 = 250μA	100			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2	3	4	
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	145			A
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 10V, I _D = 75A		5.3	6.5	mΩ
Forward Transconductance ¹	g _{fs}	V _{DS} = 25V, I _D = 75A		280		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 25V, f = 1MHz		7880		pF
Output Capacitance	C _{oss}			850		
Reverse Transfer Capacitance	C _{rss}			460		
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 = 75A		145		nC
Gate-Source Charge ^{1,2}	Q _{gs}			46		
Gate-Drain Charge ^{1,2}	Q _{gd}			52		
Turn-On Delay Time ^{1,2}	t _{d(on)}	V _{DS} = 50V, I _D = 1A, V _{GS} = 10V, R _{GS} = 6Ω		75		nS
Rise Time ^{1,2}	t _r			350		
Turn-Off Delay Time ^{1,2}	t _{d(off)}			120		
Fall Time ^{1,2}	t _f			180		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_c = 25 °C)						
Continuous Current	I _S				145	A
Pulsed Current ³	I _{SM}				580	
Forward Voltage ¹	V _{SD}	I _F = 75A, V _{GS} = 0V			1.3	V
Reverse Recovery Time	t _{rr}	I _F = 75A, dI _F /dt = 100A / μS		55		nS
Reverse Recovery Charge	Q _{rr}			180		nC

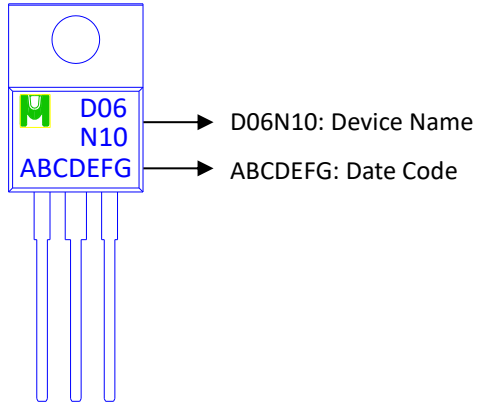
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

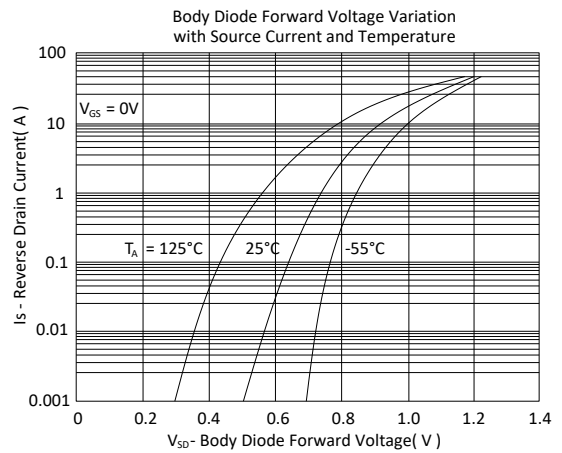
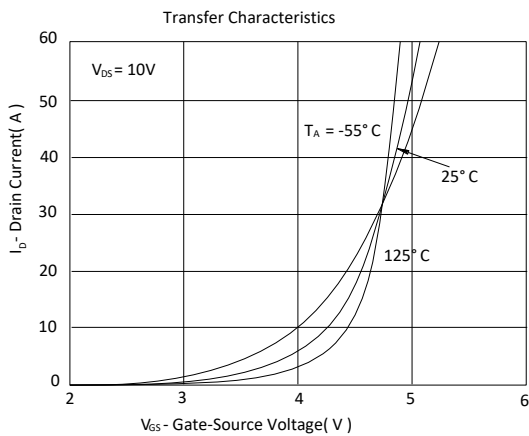
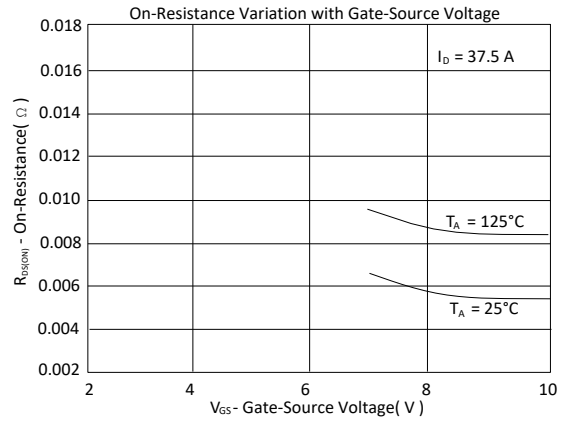
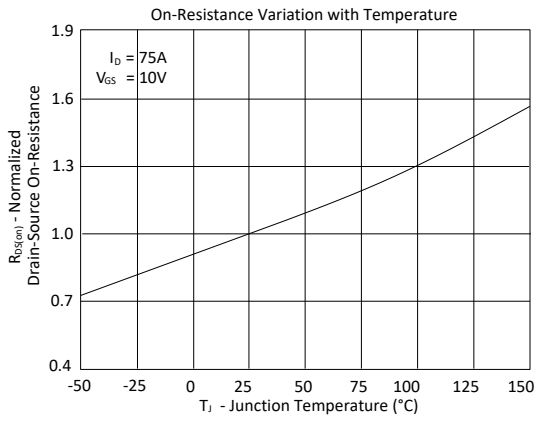
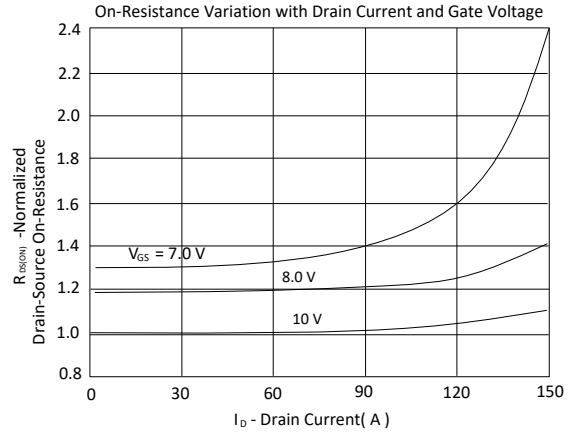
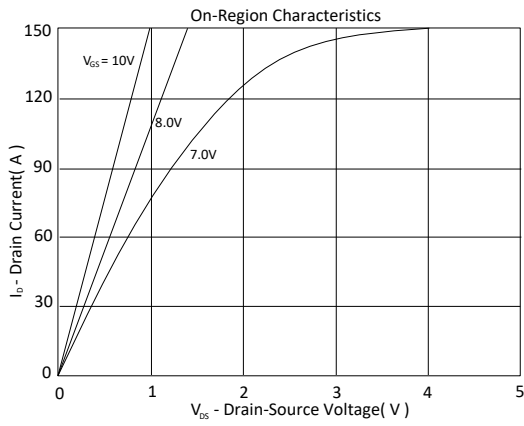
Ordering & Marking Information:

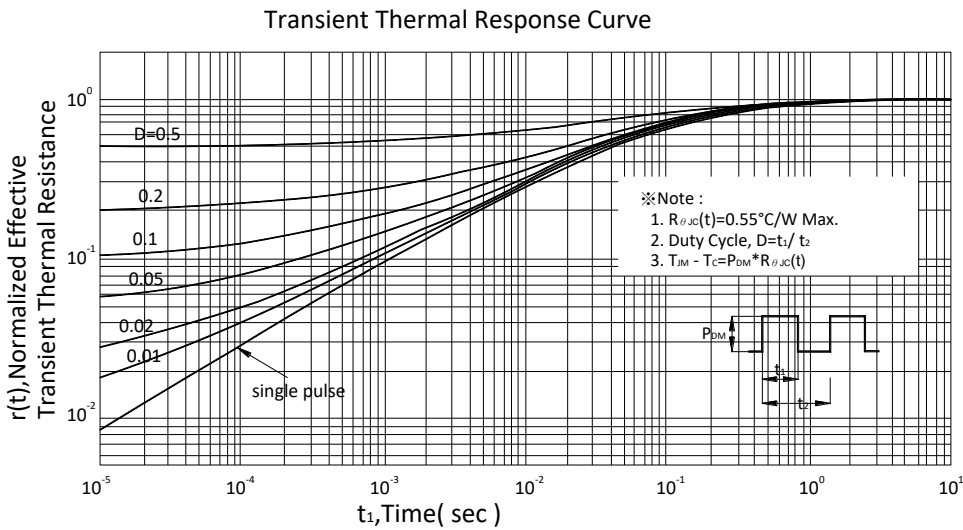
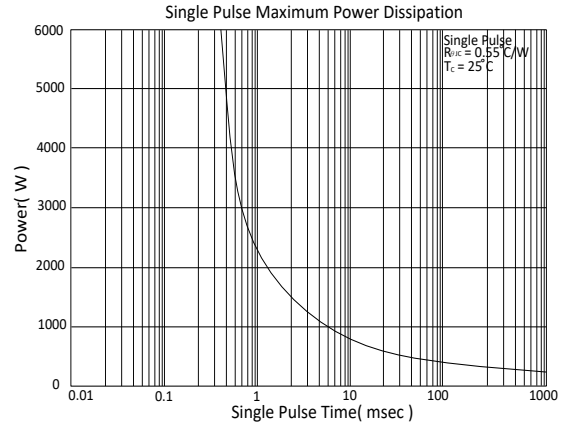
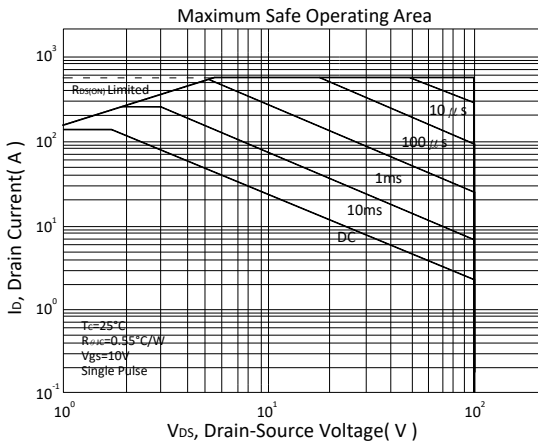
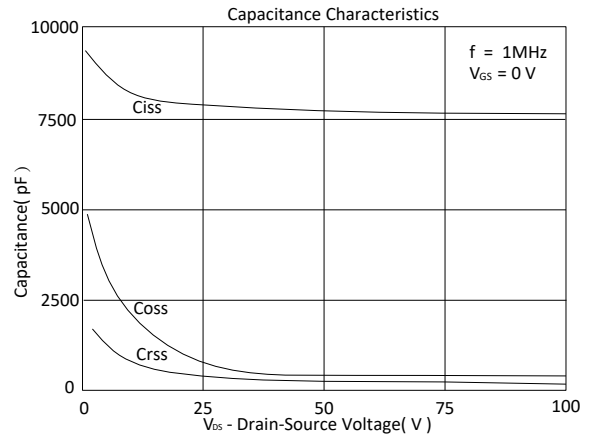
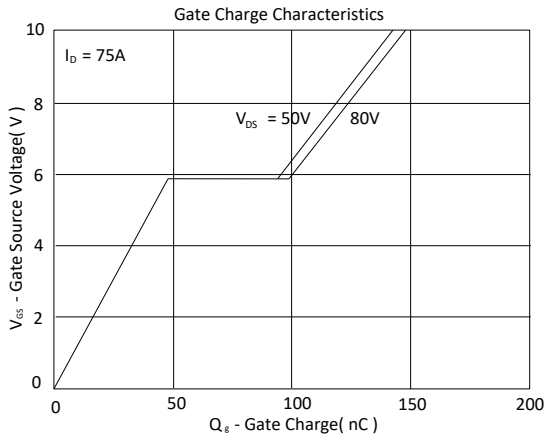
Device Name: EMD06N10E for TO-220





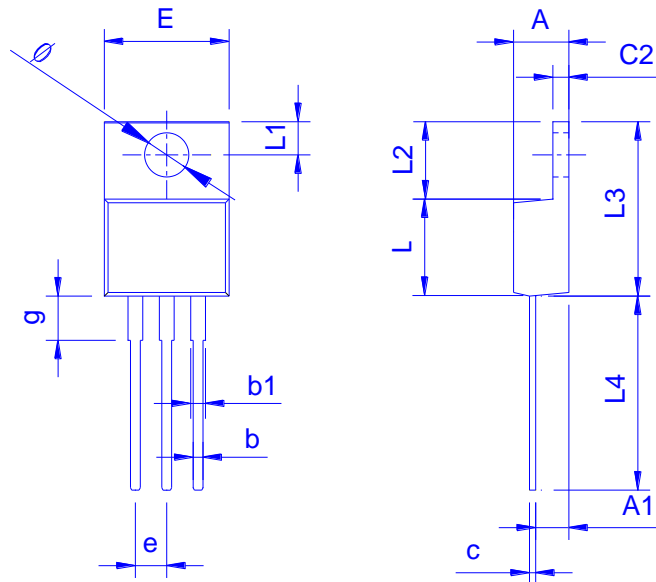
TYPICAL CHARACTERISTICS







Outline Drawing



Dimension in mm

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

