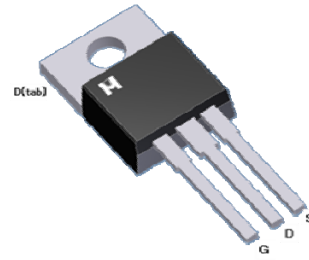
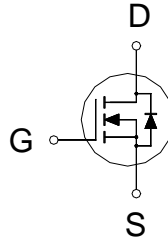


N-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV _{DSS}	60V
R _{DS(on)} (MAX.)	10mΩ
I _D	100A



UIS, R_g 100% Tested

Pb-Free Lead Plating & Halogen Free



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		V _{GS}	±20	V
Continuous Drain Current	T _C = 25 °C	I _D	100	A
	T _C = 100 °C		72	
Pulsed Drain Current ¹		I _{DM}	350	
Avalanche Current		I _{AS}	53	
Avalanche Energy	L = 0.1mH, I _D =53A, R _G =25Ω	E _{AS}	140	mJ
Repetitive Avalanche Energy ²	L = 0.05mH	E _{AR}	70	
Power Dissipation	T _C = 25 °C	P _D	166	W
	T _C = 100 °C		68	
Operating Junction & Storage Temperature Range		T _J , T _{stg}	-55 to 150	°C

100% UIS testing in condition of V_D=30V, L=0.1mH, V_G=10V, I_L=35A, Rated V_{DS}=60V N-CH

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case	R _{θJC}		0.75	°C / W
Junction-to-Ambient	R _{θJA}		62.5	

¹Pulse width limited by maximum junction temperature.

²Duty cycle ≤ 1%

ELECTRICAL CHARACTERISTICS ($T_c = 25\text{ }^\circ\text{C}$, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2	3	4	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 48V, V_{GS} = 0V$			1	μA
		$V_{DS} = 40V, V_{GS} = 0V, T_J = 125\text{ }^\circ\text{C}$			25	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 10V, V_{GS} = 10V$	100			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 20A$		8.0	10.0	m Ω
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 20A$		48		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$		2173		pF
Output Capacitance	C_{oss}			295		
Reverse Transfer Capacitance	C_{rss}			109		
Gate Resistance	R_g	$V_{GS} = 15mV, V_{DS} = 0V, f = 1MHz$		2.0		Ω
Total Gate Charge ^{1,2}	Q_g	$V_{DS} = 30V, V_{GS} = 10V,$ $I_D = 20A$		30		nC
Gate-Source Charge ^{1,2}	Q_{gs}			10		
Gate-Drain Charge ^{1,2}	Q_{gd}			10		
Turn-On Delay Time ^{1,2}	$t_{d(on)}$	$V_{DS} = 30V,$ $I_D = 1A, V_{GS} = 10V, R_{GS} = 6\Omega$		12		nS
Rise Time ^{1,2}	t_r			60		
Turn-Off Delay Time ^{1,2}	$t_{d(off)}$			90		
Fall Time ^{1,2}	t_f			70		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_c = 25\text{ }^\circ\text{C}$)						
Continuous Current	I_S				100	A
Pulsed Current ³	I_{SM}				350	
Forward Voltage ¹	V_{SD}	$I_F = 20A, V_{GS} = 0V$			1.3	V
Reverse Recovery Time	t_{rr}	$I_F = 25A, di_F/dt = 100A / \mu S$		28		nS
Reverse Recovery Charge	Q_{rr}			140		nC

¹Pulse test : Pulse Width $\leq 300\ \mu\text{sec}$, Duty Cycle $\leq 2\%$.

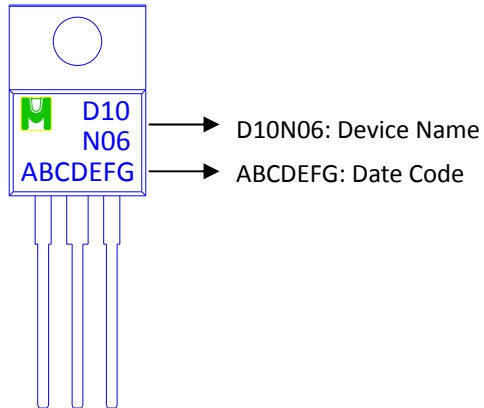
²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

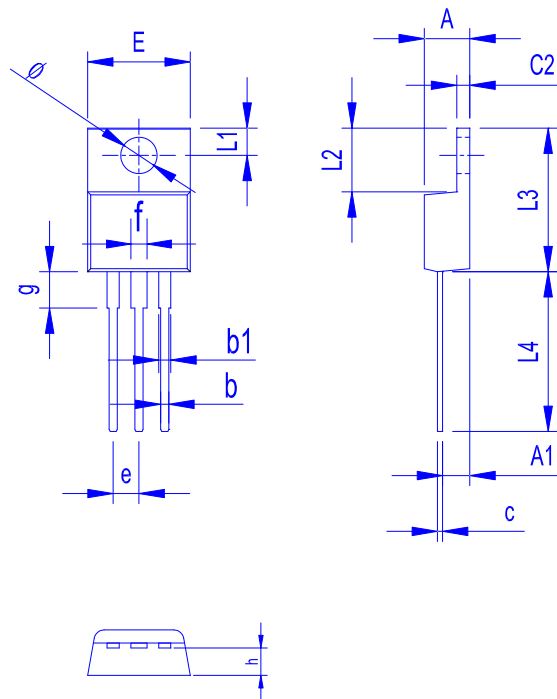


Ordering & Marking Information:

Device Name: EMD10N06E for TO-220



Outline Drawing



Dimension in mm

Dimension	A	b	b1	c	c2	E	L1	L2	L3	L4	ϕ	e	f	g	h
Min.	4.20	0.70	0.90	0.30	1.10	9.80	2.55	6.10	14.80	13.50	3.40	2.35	1.30	3.40	2.40
Max.	4.80	1.10	1.50	0.70	1.50	10.50	2.85	6.50	15.40	14.50	3.80	2.75	1.90	3.80	3.00

TYPICAL CHARACTERISTICS

