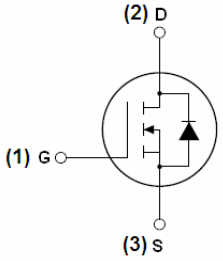
EFM035N03MGT

N-Channel Advanced MOSFET

• Product Summary

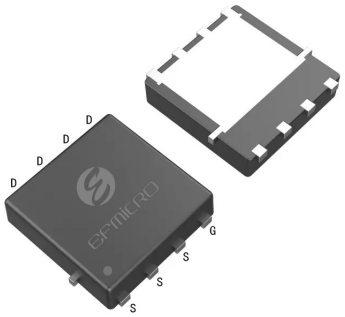
Part #	V_{DS}	$R_{DS(on).typ}$ (@V_{GS}=10V)	$R_{DS(on).typ}$ (@V_{GS}=4.5V)	I_D
EFM035N03MGT	30V	3.5mΩ	5.4mΩ	75A



N-Channel MOSFET

• Description

- The EFM035N03MGT is the high cell density trenched
- N-ch MOSFETs which provide excellent
- RDSON and gate cherge for most of the
- synchronous buck converter applications.
- The EFM035N03MGT meet the RoHS and Green
- Prod uct requirement, 100 % EAS guaranteed
- with full function reliability approved.



DFN3*3-8L

•Application

- Super Low Gate Charge 100% EAS Guaranteed
- Green Device Available Excellent CdV/dt effect decline
- Advanced high cell density Trench technology

•Ordering Information:

Part NO.	EFM035N03MGT
Marking	******
Packing Information	REEL TAPE
Basic ordering unit (pcs)	5000

•Absolute Maximum Ratings (T_C=25℃)

Parameter		Symbol	Value	Unit
Drain-Source Voltage (V_{GS} = 0V)		V_{DSS}	30	V
Continuous Drain Current	T_C = 25ºC	I_D	75	A
	T_C = 100ºC		53	
Pulsed Drain Current (note1)		I_{DM}	225	A
Gate-Source Voltage		V_{GSS}	±20	V
Single Pulse Avalanche Energy (note2)		E_{AS}	72	mJ
Avalanche Current		I_{As}	25	A
Power Dissipation (note3)	T_C = 25ºC	P_D	29	W
	T_C = 100ºC	P_D	14	W
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55~+150	ºC

●Thermal Characteristic

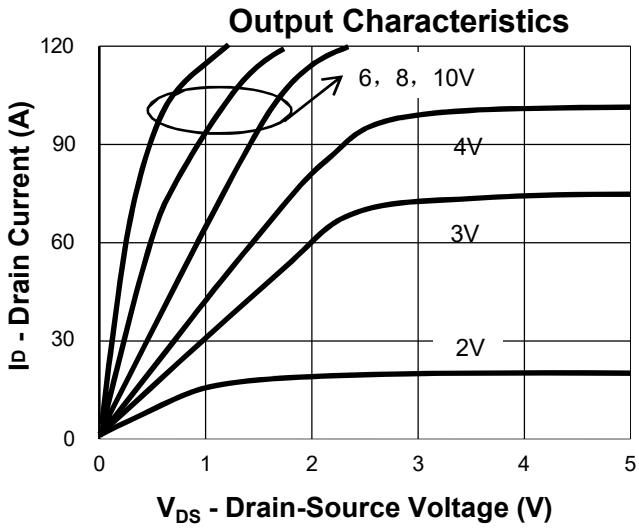
Parameter	Symbol	Max	Unit
Thermal Resistance, Junction-to-Case	R_{thJC}	4.3	ºC/W
Thermal Resistance, Junction-to-Ambient	R_{thJA}	58	

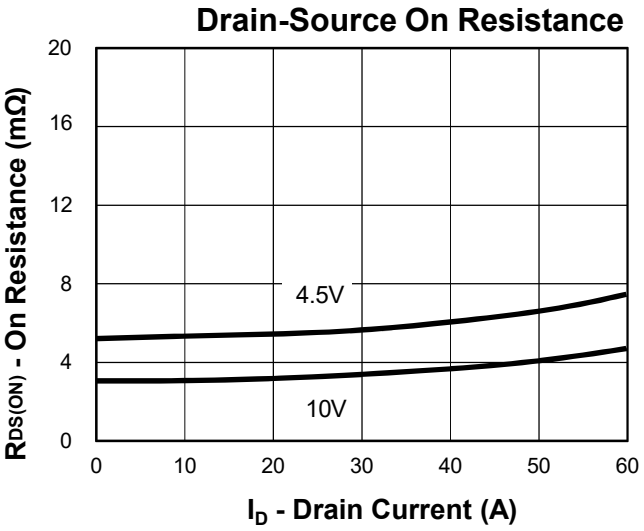
● Static Electrical Characteristics @ T_J = 25°C (unless otherwise stated)

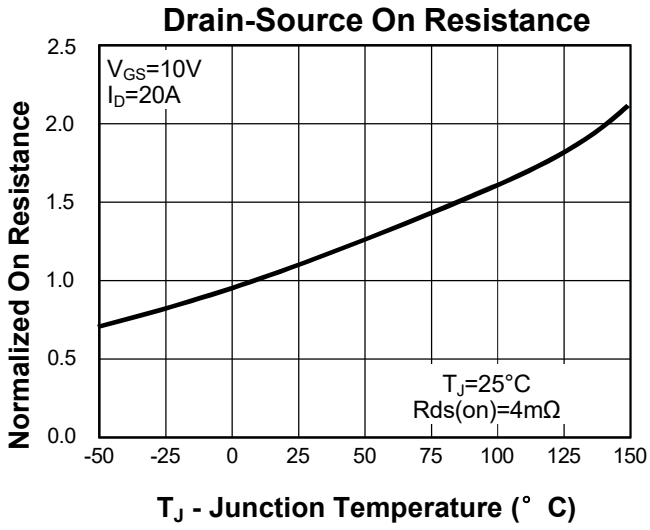
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=250μA	30			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V, V_{GS}=0V			1	μA
		T_J=125°C			100	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=250μA	1.0		2.5	V
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V			±100	nA
$R_{DS(ON)}$ ⑤	Drain-Source On-state Resistance	V_{GS}=10V, I_{DS}=15A		3.5	4.2	mΩ
		V_{GS}=4.5V, I_{DS}=10A		5.4	6.5	mΩ
Diode Characteristics						
V_{SD} ⑤	Diode Forward Voltage	I_{SD}=15A, V_{GS}=0V			1.2	V
t_{rr}	Reverse Recovery Time	I_{SD}=15A, dI_{SD}/dt=100A/μs		20		ns
Q_{rr}	Reverse Recovery Charge			13		nC
Dynamic Characteristics⑥						
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V,F=1MHz		4.7		Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=15V, Frequency=1.0MHz		992		pF
C_{oss}	Output Capacitance			252		
C_{rss}	Reverse Transfer Capacitance			26		
$t_{d(ON)}$	Turn-on Delay Time	V_{DD}=15V, R_L=1.00Ω, I_{DS}=15A, V_{GEN}=10V, R_G=3Ω		9.8		ns
t_r	Turn-on Rise Time			23		
$t_{d(OFF)}$	Turn-off Delay Time			25.6		
t_f	Turn-off Fall Time			6		
Gate Charge Characteristics⑥						
Q_g	Total Gate Charge	V_{DS}=15V, V_{GS}=10V, I_{DS}=15A		21.4		nC
Q_{gs}	Gate-Source Charge			3.64		
Q_{gd}	Gate-Drain Charge			4.8		

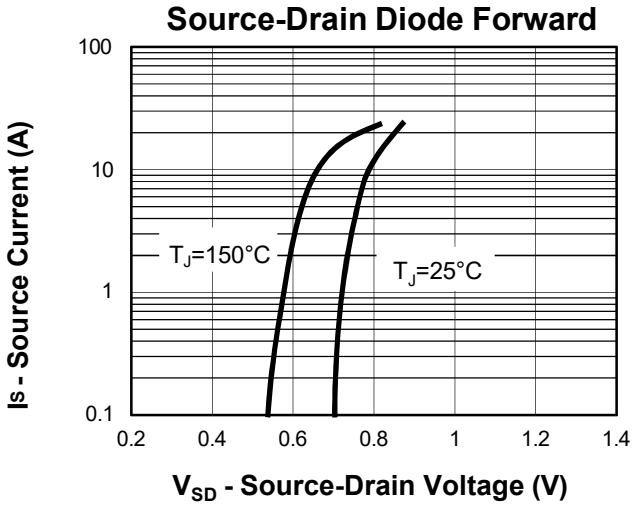
Notes:
①Pulse width limited by safe operating area.
②Calculated continuous current based on maximum allowable junction temperature.
③When mounted on 1 inch square copper board, t≤10sec.
④Limited by TJmax, IAS =17A, VDD = 15V, RG = 25Ω, L=0.5mH, Starting TJ = 25°C.
⑤Pulse test;Pulse width≤300μs, duty cycle≤2%.
⑥Guaranteed by design, not subject to production testing.

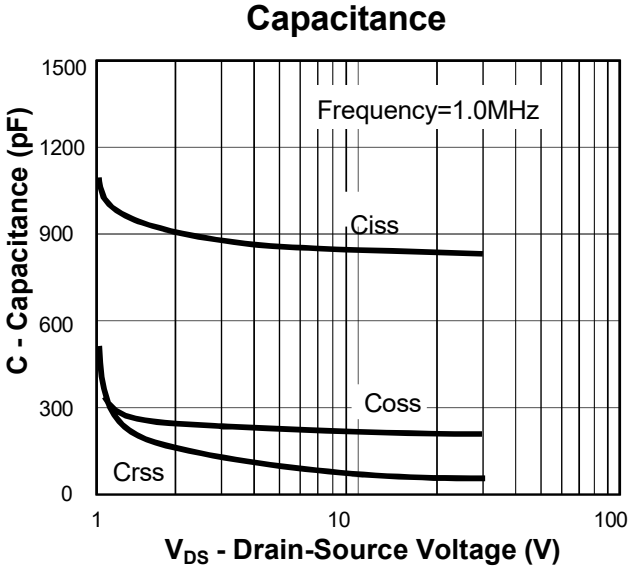
• Typical Characteristics

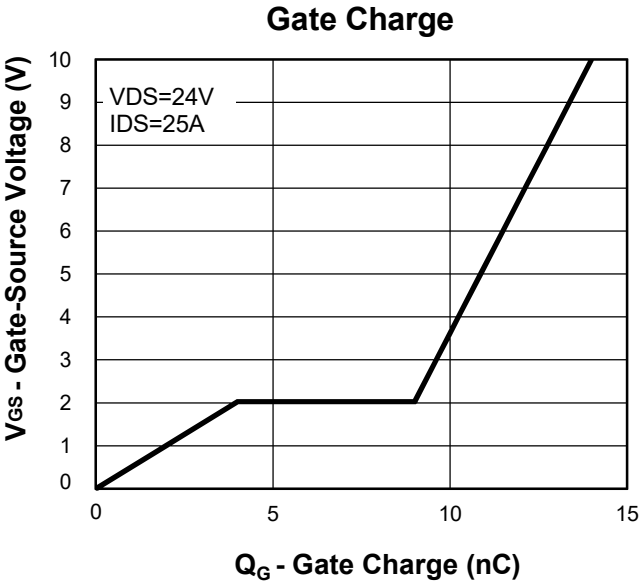




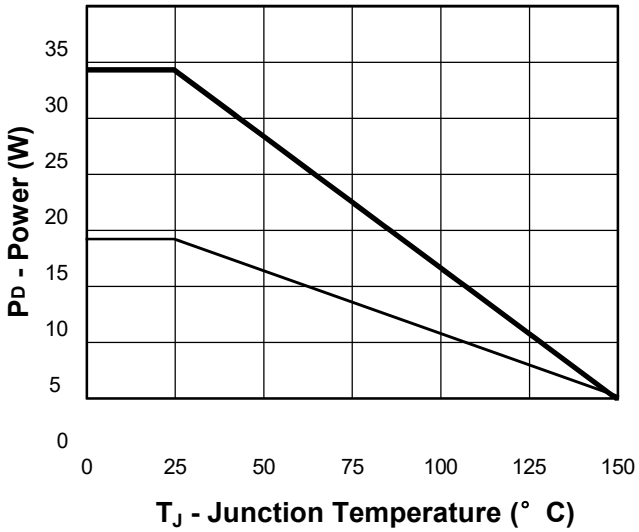




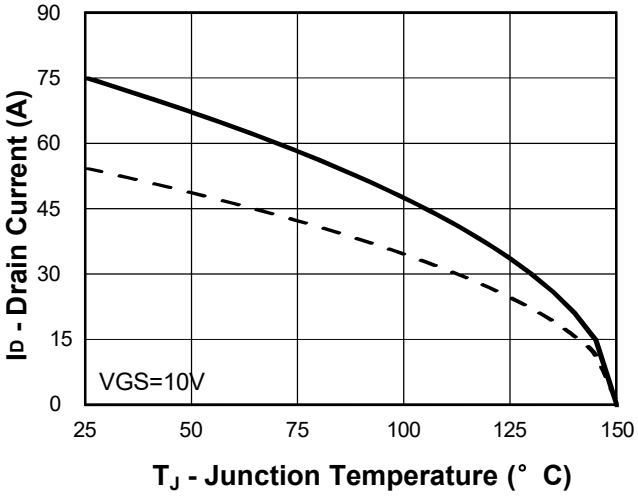




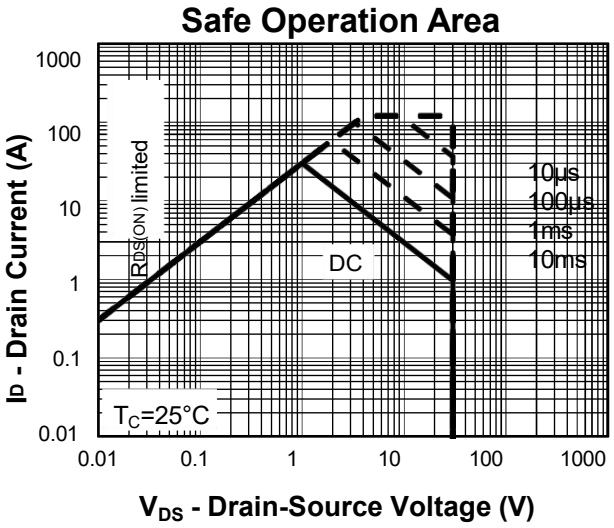
Power Dissipation



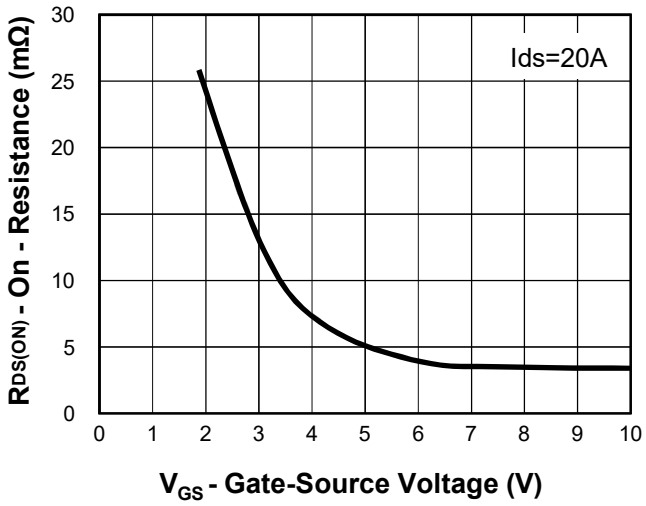
Drain Current



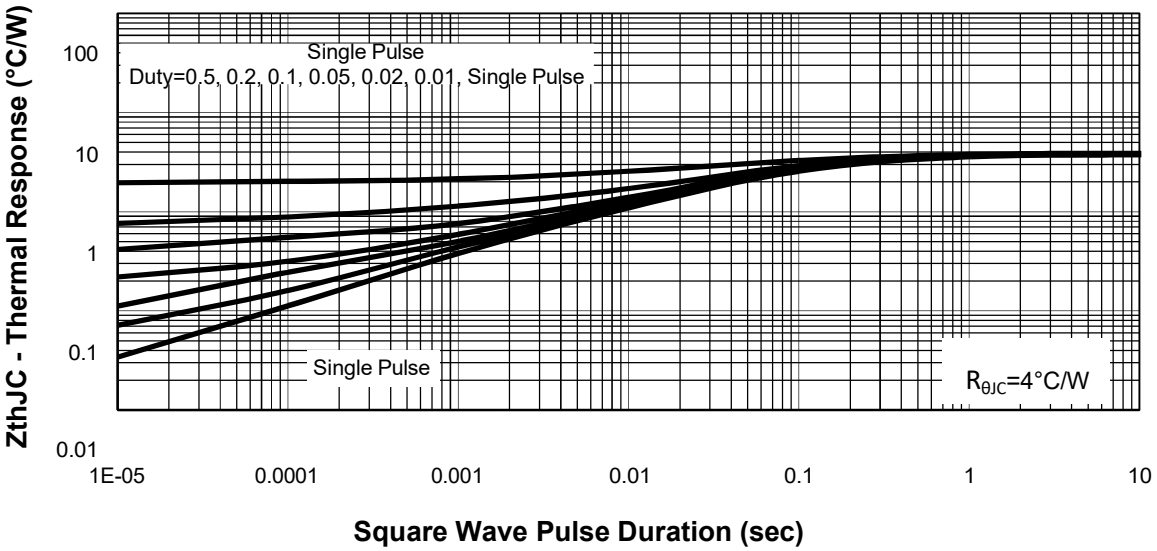
Safe Operation Area



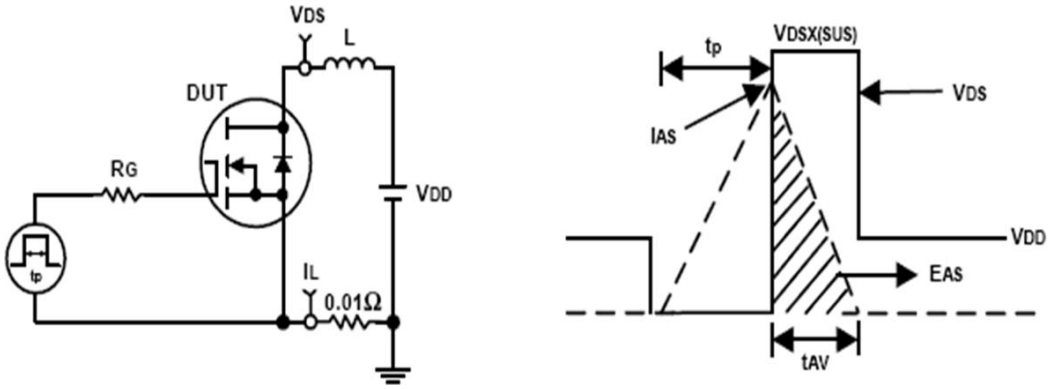
Drain Current



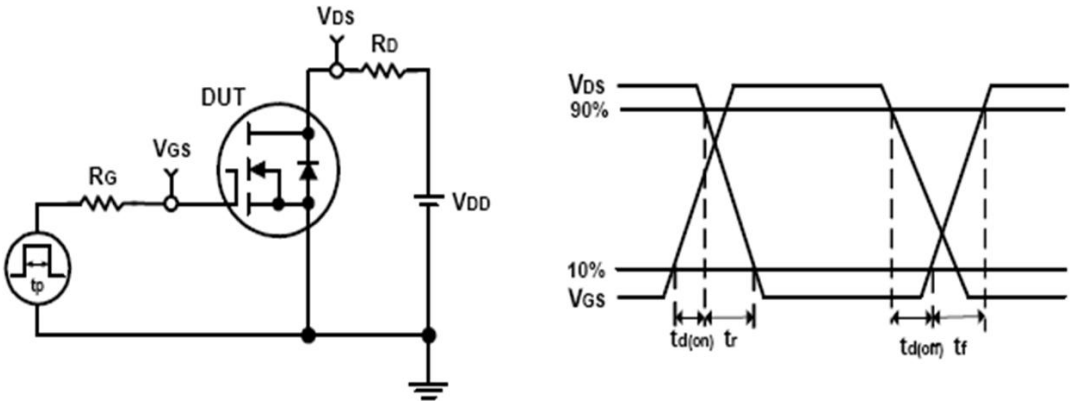
Thermal Transient Impedance



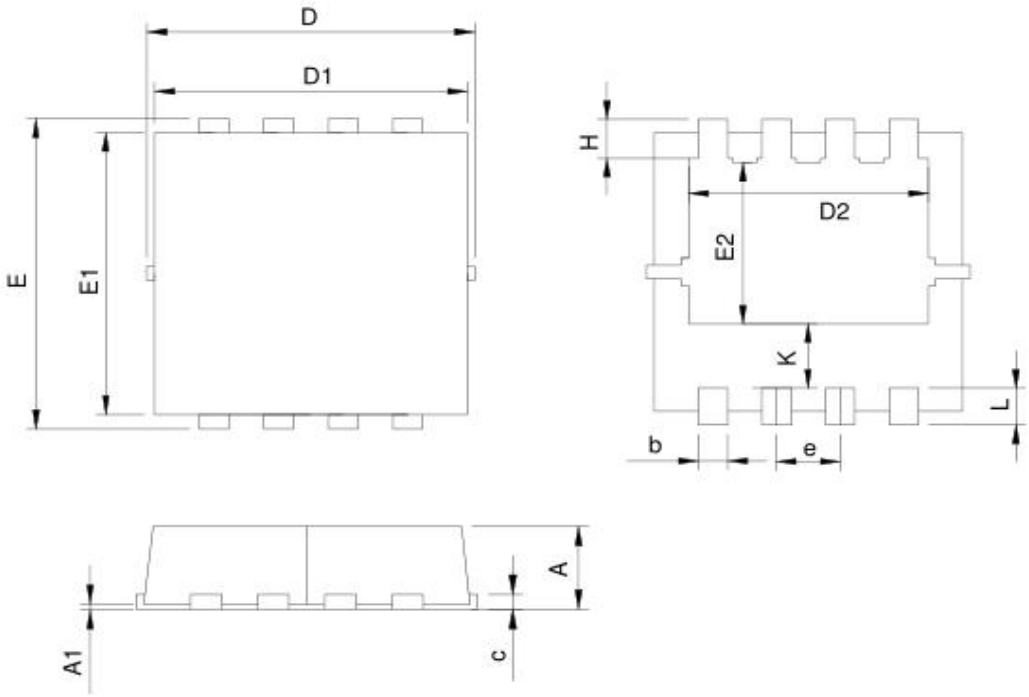
Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms

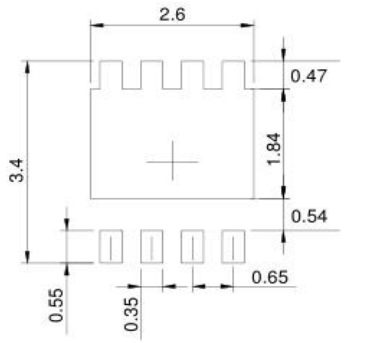


●DFN3*3 Package Outline



SYMBOL	DFN3.3x3.3-8			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.70	1.00	0.028	0.039
A1	0.00	0.05	0.000	0.002
b	0.25	0.35	0.010	0.014
c	0.14	0.20	0.006	0.008
D	3.10	3.50	0.122	0.138
D1	3.05	3.25	0.120	0.128
D2	2.35	2.55	0.093	0.100
E	3.10	3.50	0.122	0.138
E1	2.90	3.10	0.114	0.122
E2	1.64	1.84	0.065	0.072
e	0.65 BSC		0.026 BSC	
H	0.32	0.52	0.013	0.020
K	0.59	0.79	0.023	0.031
L	0.25	0.55	0.010	0.022

RECOMMENDED LAND PATTERN



UNIT: mm