

$V_{DS}=80V$

$R_{DS(ON)}, V_{GS}@10V, I_{DS}@40A = 11m\Omega$

FEATURES

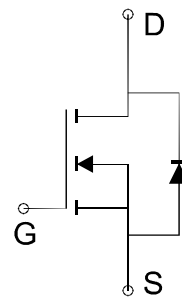
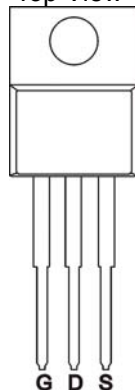
Minimize input capacitance and gate charge

Specially designed for DC/DC converters and DC motor control

PIN CONFIGURATION

(TO-220)

Top View



Ordering Information: ME75N80ED (Pb-free)

ME75N80ED-G (Green product-Halogen free)

Absolute Maximum Ratings ($T_C=25^\circ C$ Unless Otherwise Noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	80	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	$T_C=25^\circ C$	75
		$T_C=100^\circ C$	60
Pulsed Drain Current ^a	I_{DM}	300	A
Source-drain Current	I_{SD}	75	A
Power Dissipation	P_D	$T_C=25^\circ C$	75
		$T_A=25^\circ C$	4
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 175	$^\circ C$
Avalanche Energy with Single Pulse ^b	E_{AS}	400	mJ
Thermal Resistance-Junction to Ambient*	$R_{\theta JA}$	$T \leq 10 \text{ sec}$	7.3
		Steady State	37
Thermal Resistance-Junction to Case	$R_{\theta JC}$	2	$^\circ C/W$

a. Pulse width limited by safe operating area

b. Starting $T_J=25^\circ C$, $I_D=30A$, $V_{DD}=37.5V$

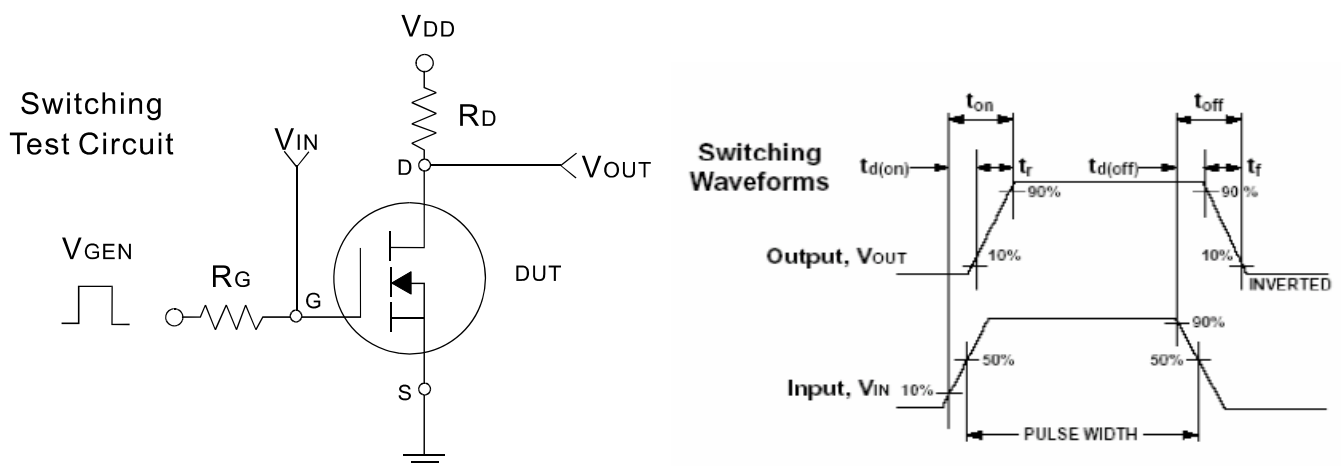
N-Channel Enhancement Mode MOSFET

Electrical Characteristics

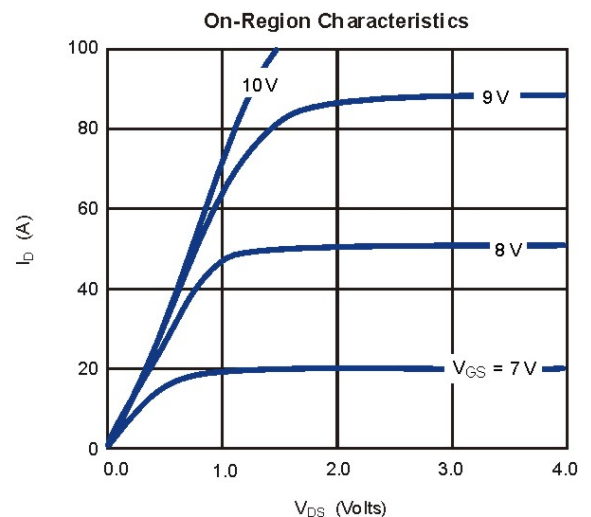
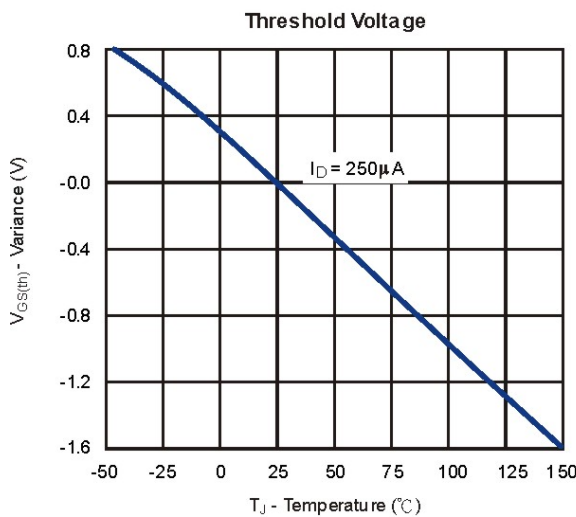
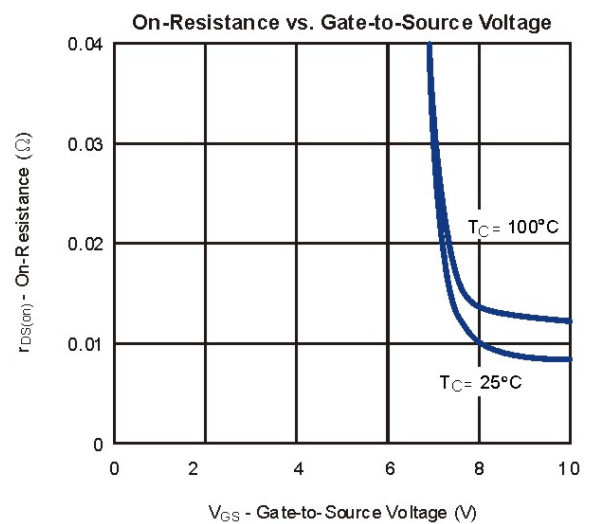
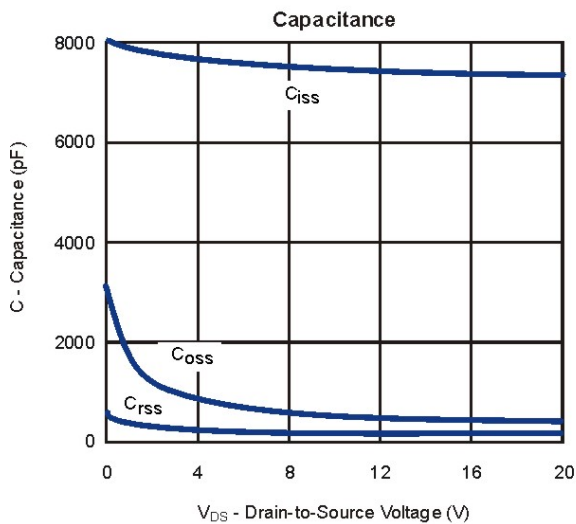
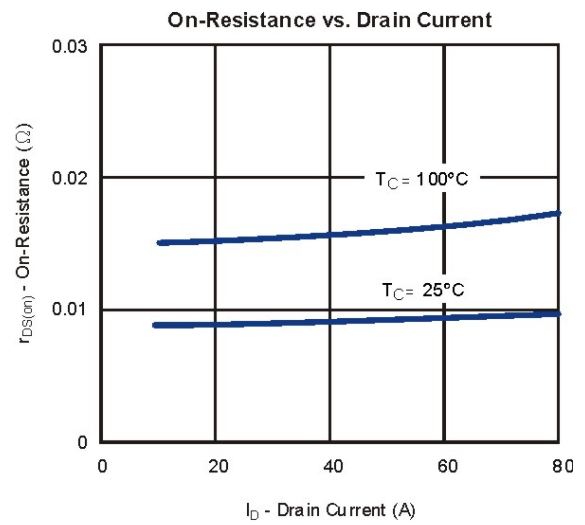
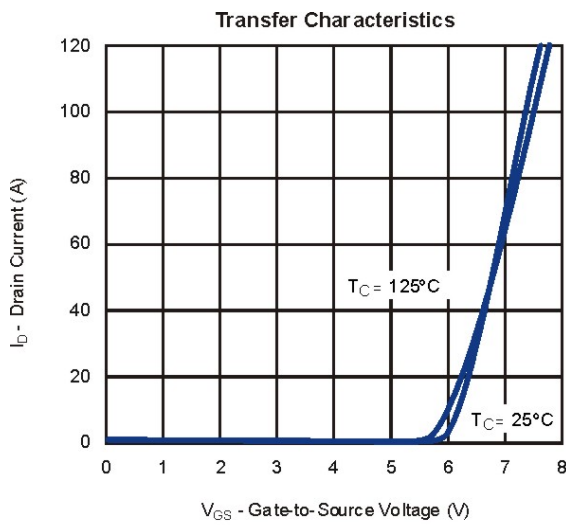
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μA	80			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250 μA	4.0		6.5	V
I _{GSS}	Gate-Body Leakage	V _{GS} =±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =Max Rating, V _{GS} =0V			1	μA
R _{DS(ON)}	Drain-Source On-Resistance*	V _{GS} =10V, I _D =40A		8.5	11	mΩ
G _{FS}	Forward Transconductance*	V _{DS} =15V, I _D =40A		10		S
V _{SD}	Diode Forward Voltage *	I _{SD} =25A, V _{GS} =0V			1.5	V
DYNAMIC						
Q _g	Total Gate Charge	V _{DD} =60V, V _{GS} =10V, I _D =75A		120		nC
Q _{gs}	Gate-Source Charge			54		
Q _{gd}	Gate-Drain Charge			38		
R _g	Gate Resistance	f=1MHz		2.3		Ω
C _{iss}	Input Capacitance	V _{DS} =20V, V _{GS} =0V, f=1MHz		7400		pF
C _{oss}	Output Capacitance			450		
C _{rss}	Reverse Transfer Capacitance			140		
t _{d(on)}	Turn-On Delay Time	V _{GS} =10V, R _L =15Ω V _{DD} =30V, R _G =10Ω		80		ns
t _r	Turn-On Rise Time			37		
t _{d(off)}	Turn-Off Delay Time			140		
t _f	Turn-Off Fall Time			27		

Notes: a. Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%, Guaranteed by design, not subject to production testing.

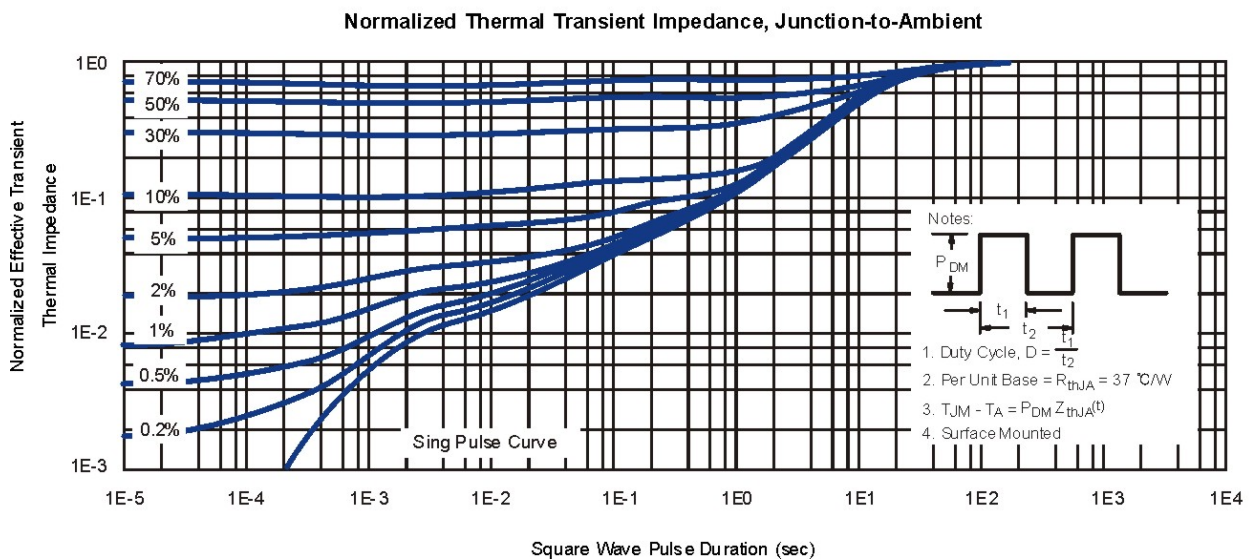
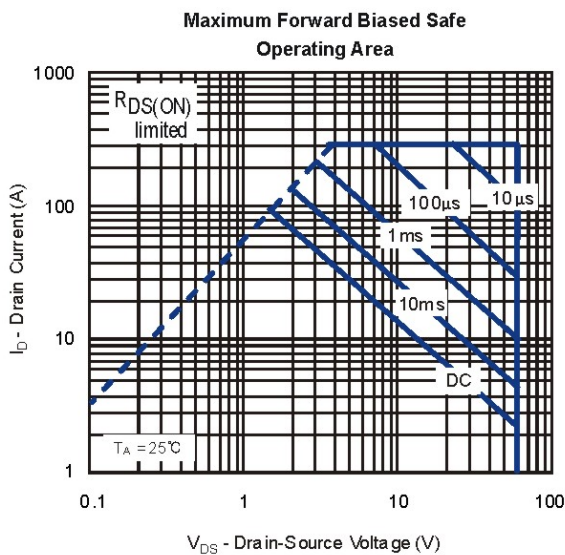
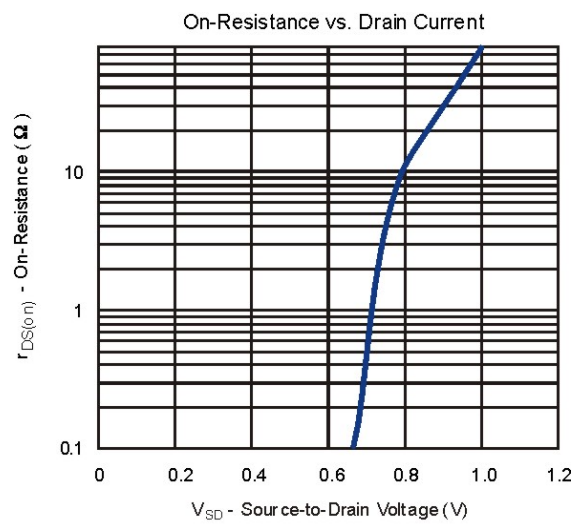
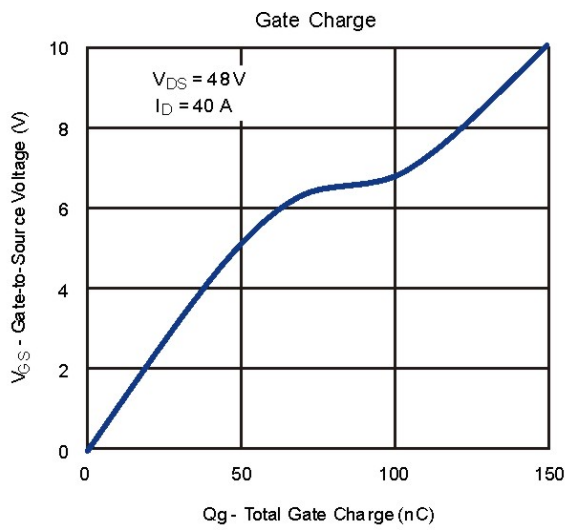
b. Matsuki reserves the right to improve product design, functions and reliability without notice.



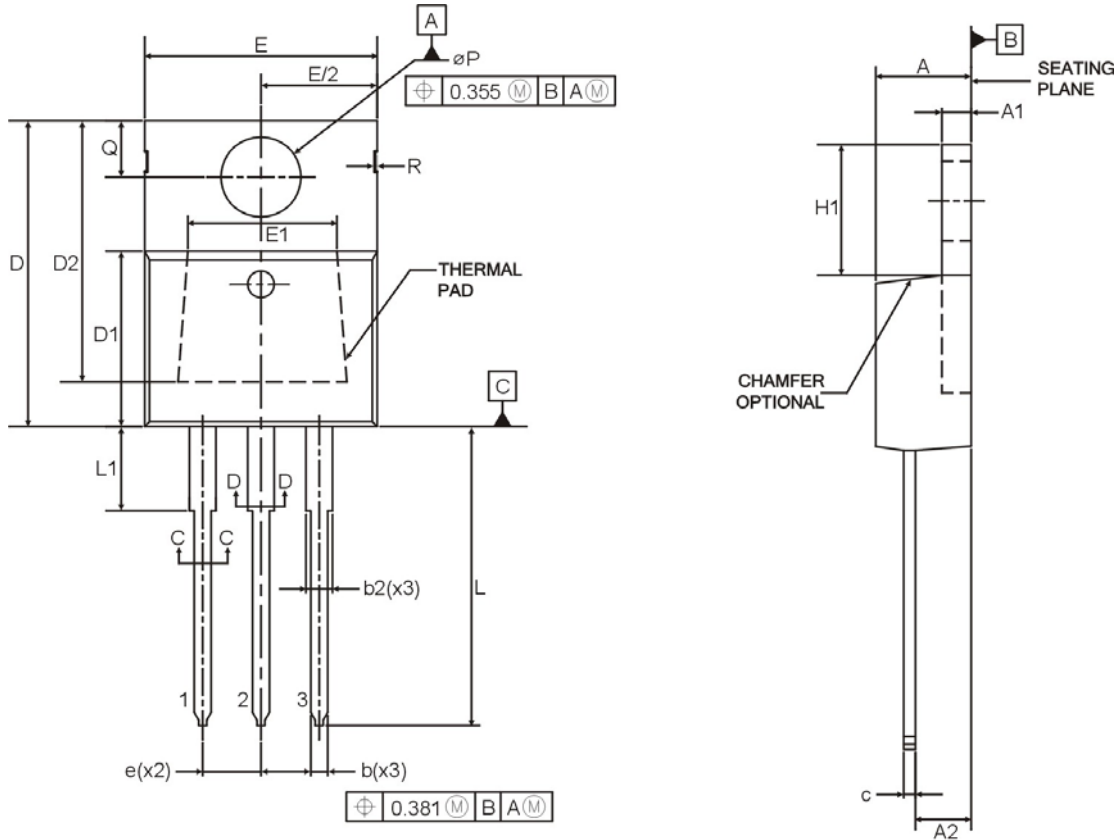
Typical Characteristics (T_J = 25°C Noted)



Typical Characteristics (T_J = 25°C Noted)



TO-220 Package Outline



SYMBOL	MILLIMETERS (mm)	
	MIN	MAX
A	3.500	4.90
A1	1.000	1.40
A2	2.000	3.00
b	0.500	1.00
c	0.350	0.65
D	14.00	16.50
D1	8.382	9.017
D2	12.00	13.00
E	9.600	10.70
E1	6.858	8.890
e	2.540 BSC	
H1	5.500	7.50
L	12.50	15.00
ϕP	3.810	3.860
Q	2.540	3.048
b2	1.100	1.80
L1	-	7.00