

N-Channel 100V (D-S) MOSFET

GENERAL DESCRIPTION

The ME2602 is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance.

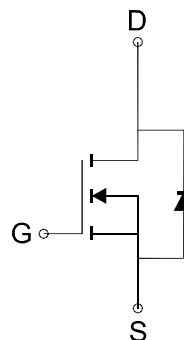
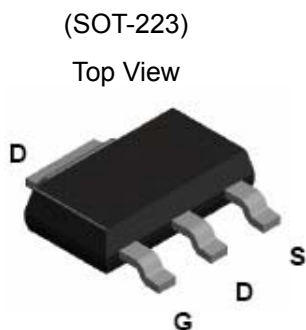
FEATURES

- $R_{DS(ON)} \leq 100m\Omega @ V_{GS}=10V$
- $R_{DS(ON)} \leq 115m\Omega @ V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

APPLICATIONS

- DC/DC Converter
- Load Switch

PIN CONFIGURATION



N-Channel MOSFET

Ordering Information: ME2602 (Pb-free)

ME2602-G (Green product-Halogen free)

Absolute Maximum Ratings (TA=25°C Unless Otherwise Noted)

Parameter	Symbol	Maximum Ratings	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	TA=25°C	4
		TA=70°C	3.2
Pulsed Drain Current	I_{DM}	16	A
Maximum Power Dissipation	P_D	TA=25°C	3
		TA=70°C	1.9
Operating Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{stg}	-55 to 150	°C
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	42	°C/W

*The device mounted on 1in² FR4 board with 2 oz copper



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Electrical Characteristics (TA=25°C Unless Otherwise Specified)

Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
V _{BR(DSS)}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μA	100			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250 μA	1.0		3.0	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =100V, V _{GS} =0V			1	μA
R _{DS(ON)}	Drain-Source On-Resistance ^a	V _{GS} =10V, I _D = 3.7A		80	100	mΩ
		V _{GS} =4.5V, I _D = 3.5A		85	115	
V _{SD}	Diode Forward Voltage	I _S =2.5A, V _{GS} =0V		0.8	1.2	V
DYNAMIC						
Q _g	Total Gate Charge	V _{DS} =80V, V _{GS} =10V, I _D =2.5A		24		nC
Q _g	Total Gate Charge	V _{DS} =80V, V _{GS} =4.5V, I _D =2.5A		14		
Q _{gs}	Gate-Source Charge			3.8		
Q _{gd}	Gate-Drain Charge			7.5		
C _{iss}	Input capacitance	V _{DS} =15V, V _{GS} =0V, f=1.0MHz		905		pF
C _{oss}	Output Capacitance			145		
C _{rss}	Reverse Transfer Capacitance			43		
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz		1		Ω
t _{d(on)}	Turn-On Delay Time	V _{DD} =50V, R _L =10Ω V _{GEN} =10V, R _G =6Ω		15		ns
t _r	Turn-On Rise Time			8		
t _{d(off)}	Turn-Off Delay Time			47		
t _f	Turn-Off Fall Time			6		

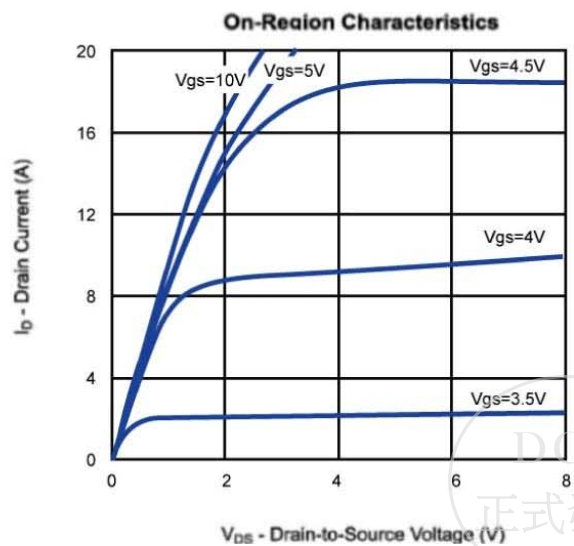
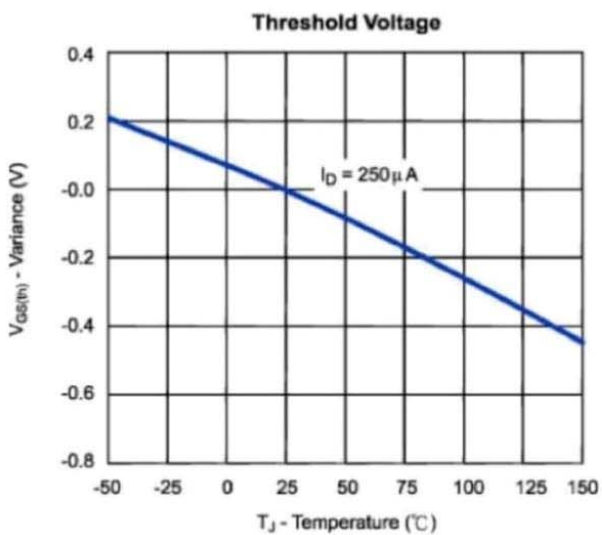
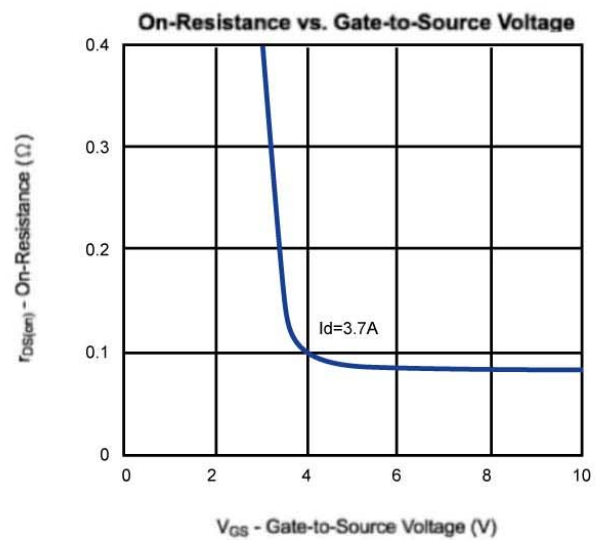
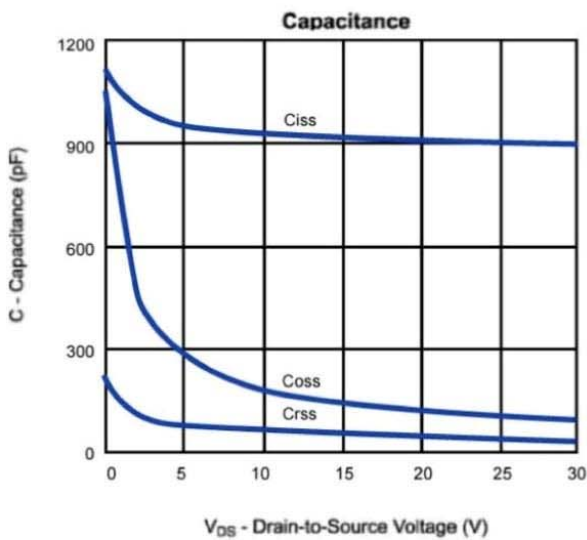
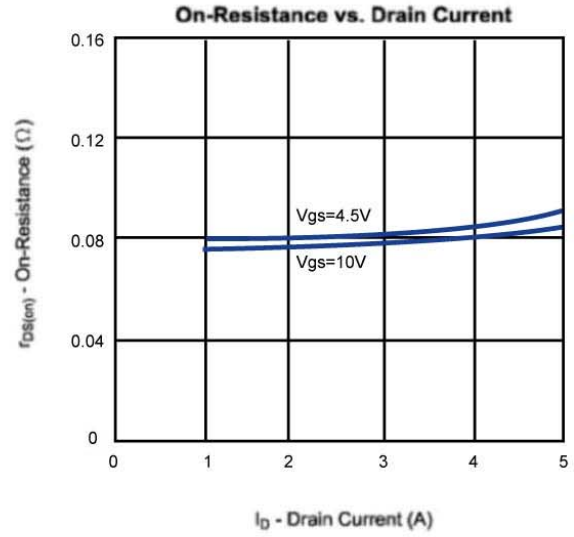
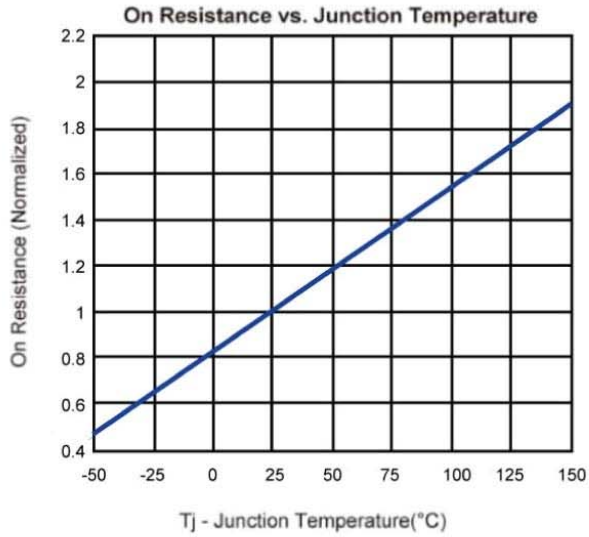
Notes: a. Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%, Guaranteed by design, not subject to production testing.

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



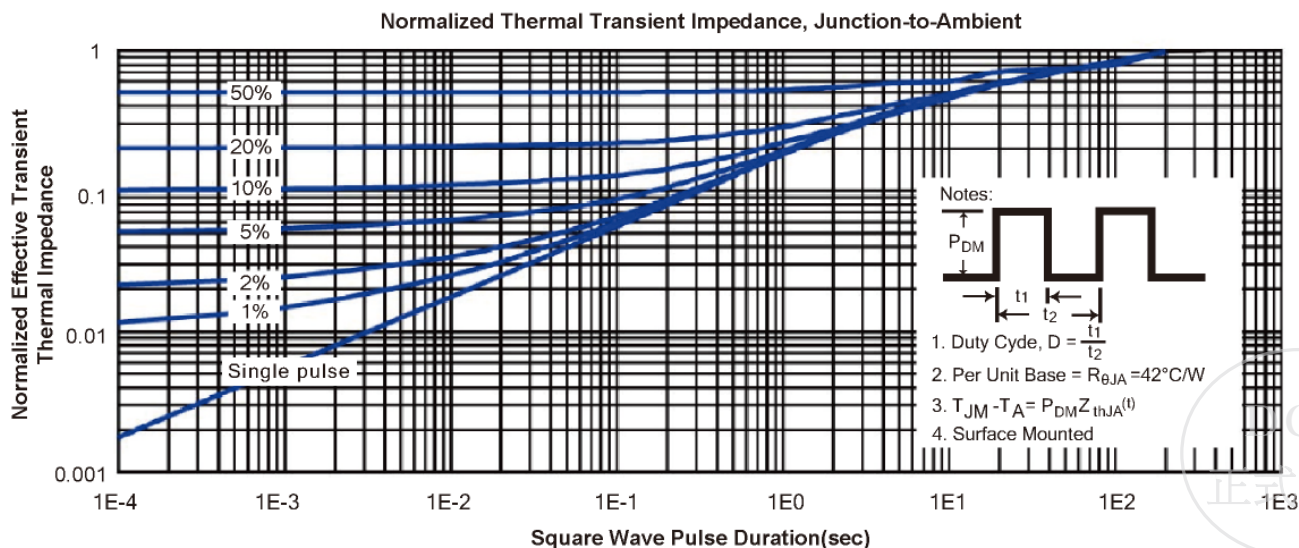
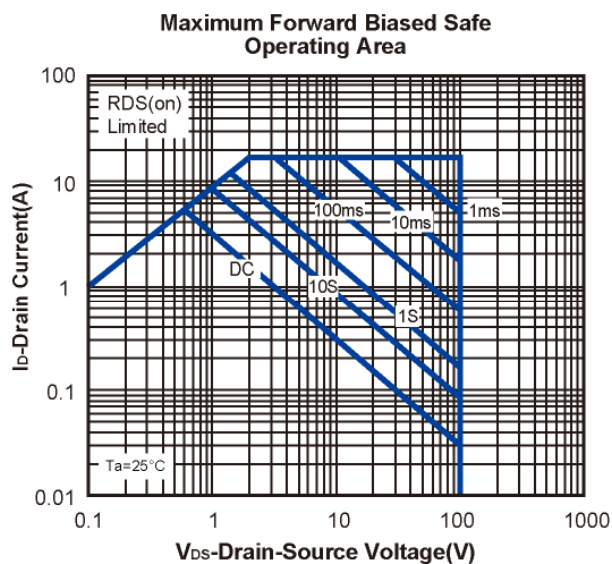
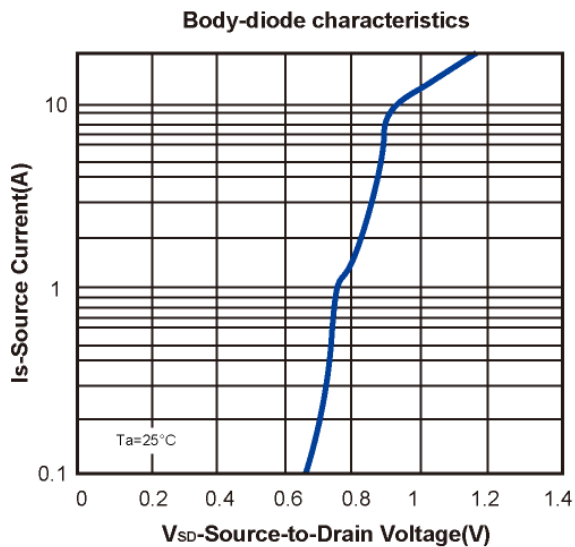
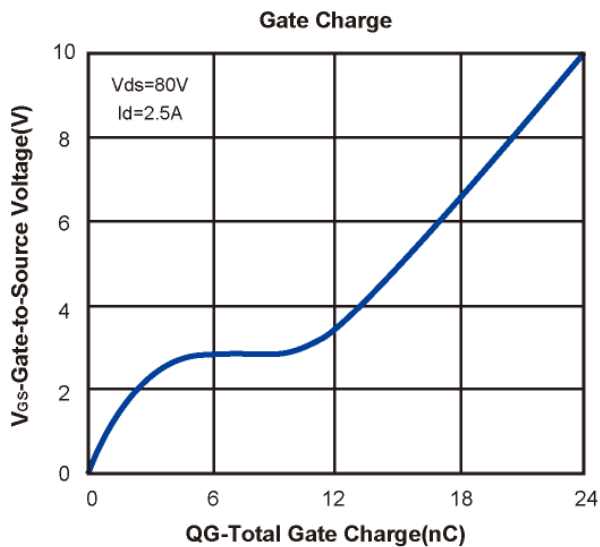
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Typical Characteristics (T_J = 25°C Noted)

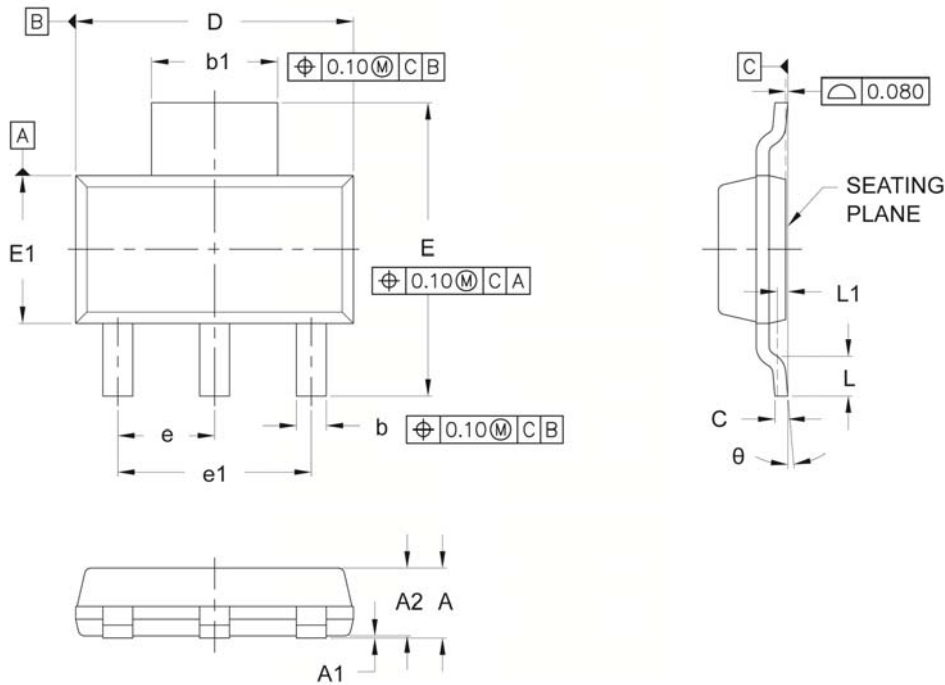


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SOT-223-3L Package Outline



SYMBOL	COMMON					
	DIMENSIONS MILLIMETER			DIMENSIONS INCH		
	MIN.	MOM.	MAX.	MIN.	MOM.	MAX.
A	—	—	1.80	—	—	0.0709
A1	0.02	—	0.10	0.0008	—	0.0039
A2	1.50	1.60	1.70	0.0591	0.0630	0.0669
b	0.66	0.76	0.84	0.0260	0.0300	0.0330
b1	2.90	3.00	3.10	0.1142	0.1181	0.1220
C	0.23	0.30	0.35	0.0090	0.1181	0.1378
D	6.30	6.50	6.70	0.2480	0.2560	0.2638
E	6.70	7.00	7.30	0.2638	0.2760	0.2874
E1	3.30	3.50	3.70	0.1300	0.1378	0.1457
e	2.30 BSC			0.0906 BSC		
e1	4.60 BSC			0.1811 BSC		
L	0.75	—	—	0.0295	—	—
θ	0°	—	10°	0°	—	10°

