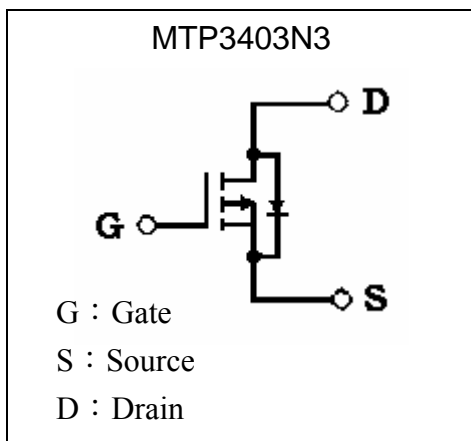
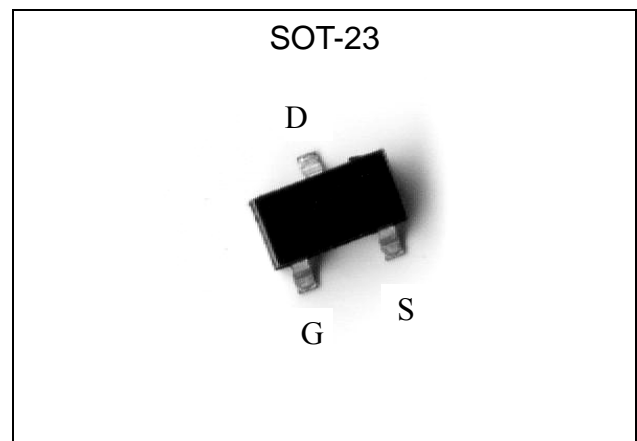


**P-CHANNEL Enhancement Mode MOSFET**

# MTP3403N3

**Features**

- $V_{DS} = -30V$   
 $R_{DS(ON)} = 75m\Omega @ V_{GS} = -10V, I_{DS} = -3A$   
 $R_{DS(ON)} = 120m\Omega @ V_{GS} = -4.5V, I_{DS} = -2.6A$
- Advanced trench process technology
- High density cell design for ultra low on resistance
- Low gate charge
- Compact and low profile SOT-23 package
- Pb-free package

**Equivalent Circuit**

**Outline**

**Absolute Maximum Ratings (Ta=25°C)**

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current @ $T_A = 25^\circ C$ (Note 1)	$I_D$	-3.7	A
Continuous Drain Current @ $T_A = 70^\circ C$ (Note 1)	$I_D$	-3.0	A
Pulsed Drain Current (Note 2)	$I_{DM}$	-12	A
Maximum Power Dissipation	$P_D$	1.38	W
Linear Derating Factor		0.01	W/°C
Operating Junction and Storage Temperature	$T_j, T_{stg}$	-55~+150	°C

Note : 1. Surface mounted on 1 in<sup>2</sup> copper pad of FR-4 board, 270°C/W when mounted on minimum copper pad.  
 2. Pulse width limited by maximum junction temperature.



**Thermal Performance**

Parameter	Symbol	Limit	Unit
Thermal Resistance, Junction-to-Ambient	Rth <sub>ja</sub>	90	°C/W

Note : Surface mounted on 1 in<sup>2</sup> copper pad of FR-4 board, 270°C/W when mounted on minimum copper pad.

**Electrical Characteristics (T<sub>j</sub>=25°C, unless otherwise specified)**

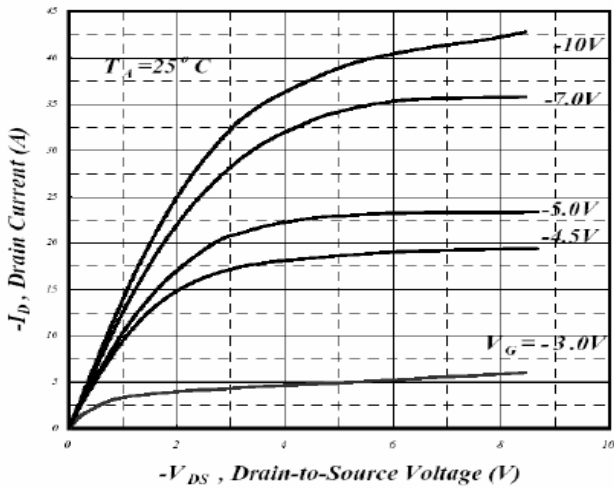
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
<b>Static</b>					
BV <sub>DSS</sub>	-30	-	-	V	V <sub>GS</sub> =0, I <sub>D</sub> =-250μA
ΔBV <sub>DSS</sub> /ΔT <sub>j</sub>	-	-0.02	-	V/°C	Reference to 25°C, I <sub>D</sub> =-1mA
V <sub>GS(th)</sub>	-1.0	-	-3.0	V	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA
I <sub>GSS</sub>	-	-	±100	nA	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0
I <sub>DSS</sub>	-	-	-1	μA	V <sub>DS</sub> =-30V, V <sub>GS</sub> =0
I <sub>DSS</sub>	-	-	-25	μA	V <sub>DS</sub> =-24V, V <sub>GS</sub> =0, T <sub>j</sub> =55°C
*R <sub>DSON</sub>	-	-	75	mΩ	I <sub>D</sub> =-3.0A, V <sub>GS</sub> =-10V
	-	-	120		I <sub>D</sub> =-2.6A, V <sub>GS</sub> =-4.5V
*G <sub>FS</sub>	-	5	-	S	V <sub>DS</sub> =-10V, I <sub>D</sub> =-3A
<b>Dynamic</b>					
C <sub>iss</sub>	-	412	660	pF	V <sub>DS</sub> =-25V, V <sub>GS</sub> =0, f=1MHz
C <sub>oss</sub>	-	91	-		
C <sub>rss</sub>	-	62	-		
*t <sub>d(ON)</sub>	-	8	-	ns	V <sub>DS</sub> =-15V, I <sub>D</sub> =-1A, V <sub>GS</sub> =-10V, R <sub>D</sub> =15Ω, R <sub>G</sub> =3.3Ω
*t <sub>r</sub>	-	5	-		
*t <sub>d(OFF)</sub>	-	20	-		
*t <sub>f</sub>	-	7	-		
*Q <sub>g</sub>	-	5	8	nC	V <sub>DS</sub> =-24V, I <sub>D</sub> =-3A, V <sub>GS</sub> =-4.5V
*Q <sub>gs</sub>	-	1	-		
*Q <sub>gd</sub>	-	3	-		
<b>Source-Drain Diode</b>					
*V <sub>SD</sub>	-	-	-1.2	V	V <sub>GS</sub> =0V, I <sub>S</sub> =-1.2A
*t <sub>rr</sub>	-	20	-	ns	I <sub>S</sub> =-3A, V <sub>GS</sub> =0V, dI/dt=100A/μs
*Q <sub>rr</sub>	-	15	-	nC	

\*Pulse Test : Pulse Width ≤300μs, Duty Cycle ≤2%

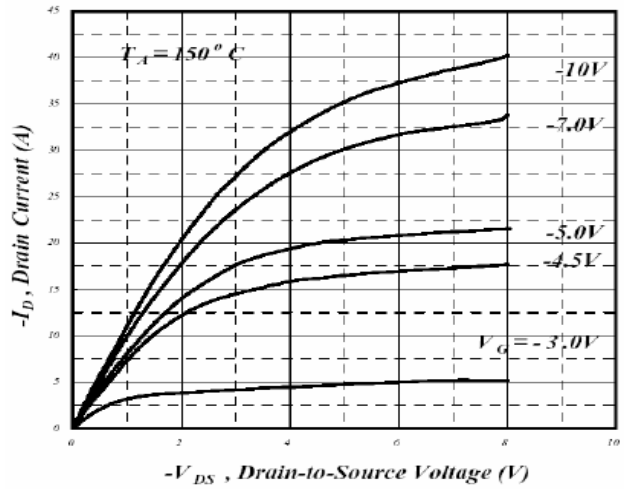
**Ordering Information**

Device	Package	Shipping	Marking
MTP3403N3	SOT-23 (Pb-free)	3000 pcs / Tape & Reel	3403

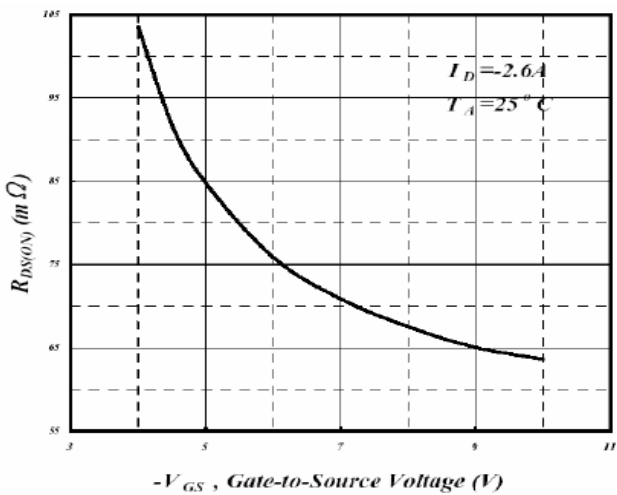
**Characteristic Curves**



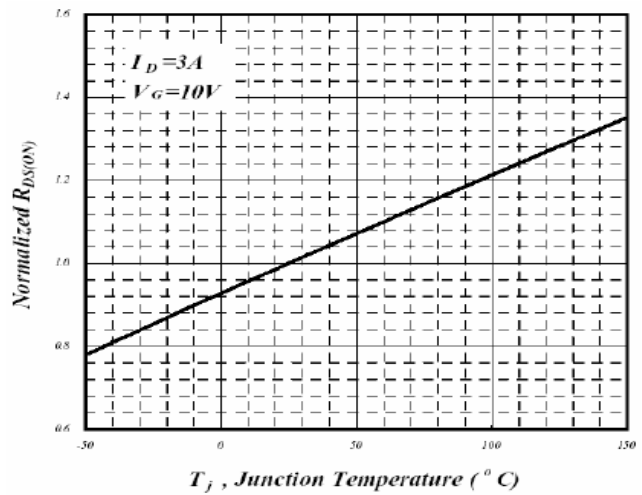
**Fig 1. Typical Output Characteristics**



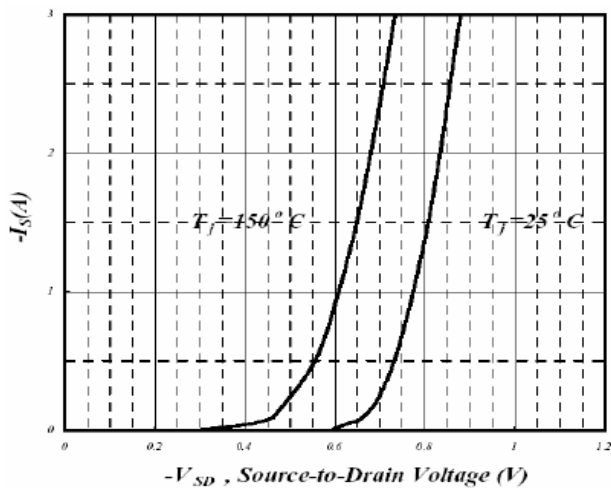
**Fig 2. Typical Output Characteristics**



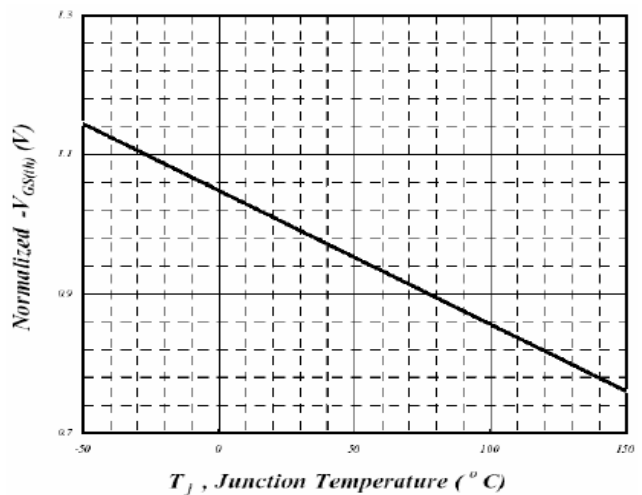
**Fig 3. On-Resistance v.s. Gate Voltage**



**Fig 4. Normalized On-Resistance v.s. Junction Temperature**

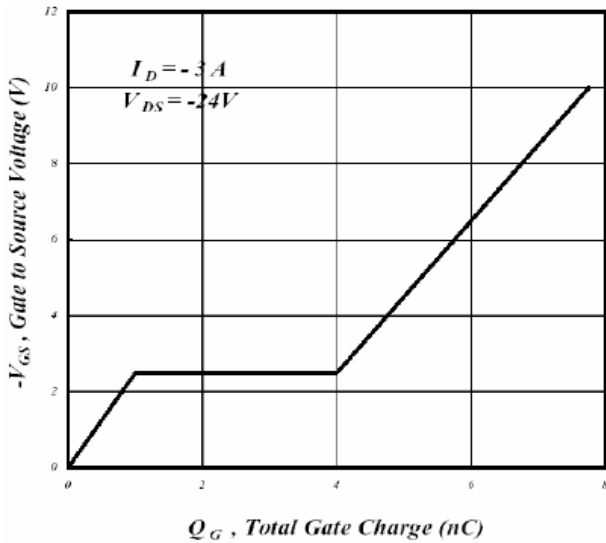


**Fig 5. Forward Characteristics of Reverse Diode**

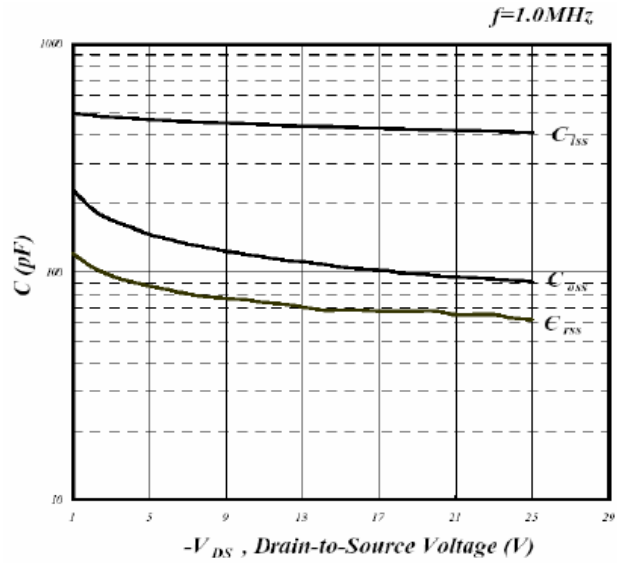


**Fig 6. Gate Threshold Voltage v.s. Junction Temperature**

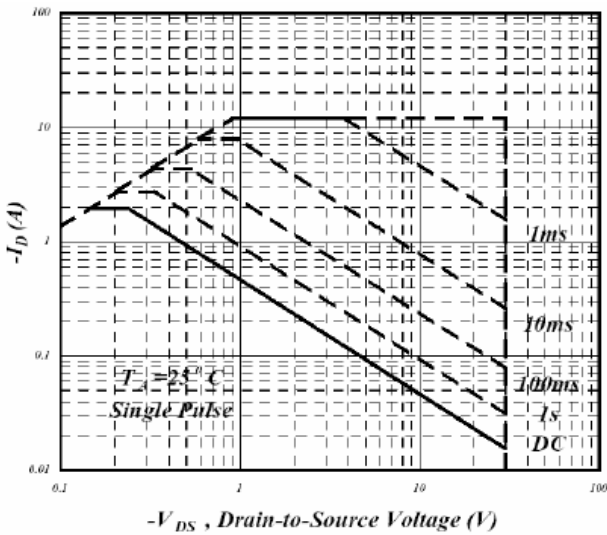
**Characteristic Curves(Cont.)**



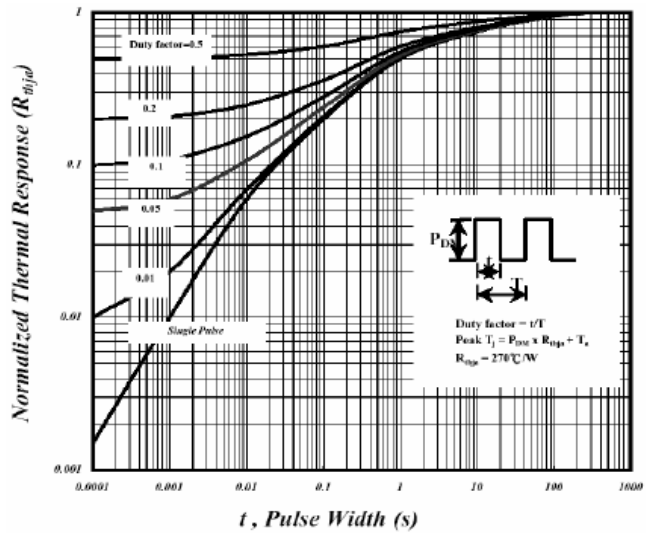
**Fig 7. Gate Charge Characteristics**



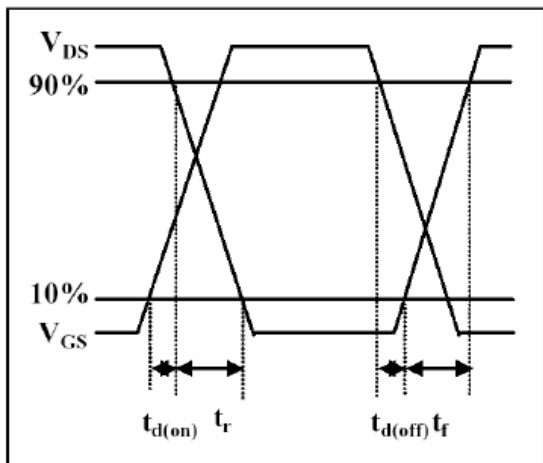
**Fig 8. Typical Capacitance Characteristics**



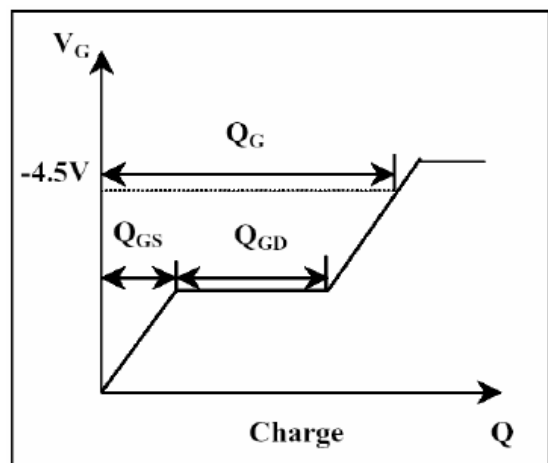
**Fig 9. Maximum Safe Operating Area**



**Fig 10. Effective Transient Thermal Impedance**

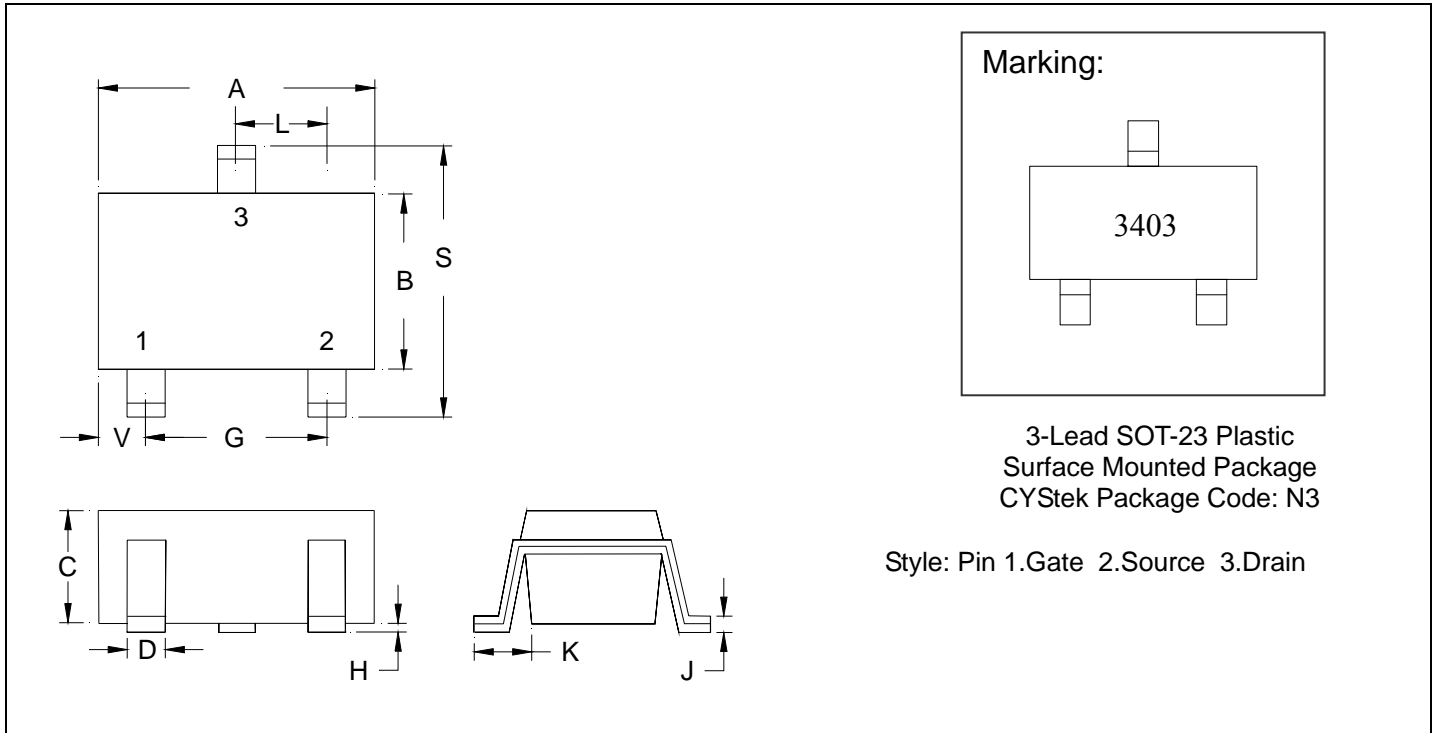


**Fig 11. Switching Time Waveform**



**Fig 12. Gate Charge Waveform**

**SOT-23 Dimension**



\*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1102	0.1204	2.80	3.04	J	0.0034	0.0070	0.085	0.177
B	0.0472	0.0630	1.20	1.60	K	0.0128	0.0266	0.32	0.67
C	0.0335	0.0512	0.89	1.30	L	0.0335	0.0453	0.85	1.15
D	0.0118	0.0197	0.30	0.50	S	0.0830	0.1083	2.10	2.75
G	0.0669	0.0910	1.70	2.30	V	0.0098	0.0256	0.25	0.65
H	0.0005	0.0040	0.013	0.10					

Notes: 1.Controlling dimension: millimeters.

2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.

3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

**Material:**

- Lead: 42 Alloy ; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

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