

Features

- Trench Power LV MOSFET Technology
- High Density Cell Design for Low $R_{DS(on)}$
- High Speed Switching
- Halogen Free
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

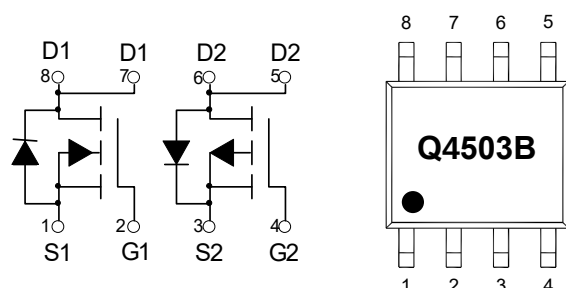
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 62.5°C/W Junction to Ambient

Parameter		Symbol	Rating	Unit
Total Power Dissipation		P _D	2	W
N-Channel				
Drain-Source Voltage		V _{DS}	30	V
Gate-Source Voltage		V _{GS}	±12	V
Continuous Drain Current	T _A =25°C	I _D	5.6	A
	T _A =70°C		4.5	
Pulsed Drain Current ⁽¹⁾		I _{DM}	23	A
P-Channel				
Drain-Source Voltage		V _{DS}	-30	V
Gate-Source Voltage		V _{GS}	±12	V
Continuous Drain Current	T _A =25°C	I _D	-4.4	A
	T _A =70°C		-3.5	
Pulsed Drain Current ⁽¹⁾		I _{DM}	-27	A

Note:

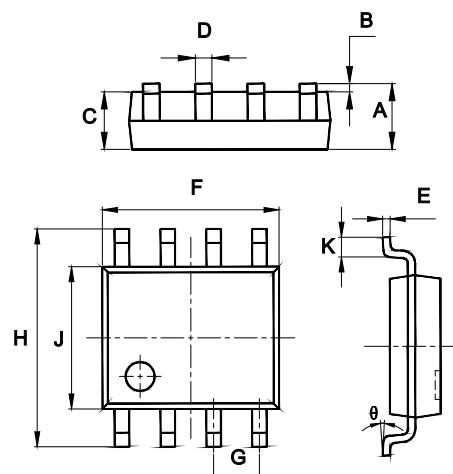
1. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

Internal Structure and Marking Code



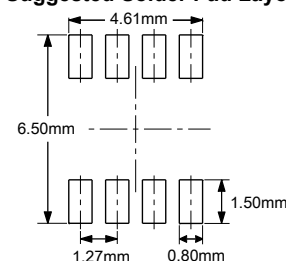
Dual N&P-Channel MOSFET

SOP-8



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.053	0.069	1.35	1.75	
B	0.004	0.010	0.10	0.25	
C	0.053	0.061	1.35	1.55	
D	0.013	0.020	0.33	0.51	
E	0.007	0.010	0.17	0.25	
F	0.185	0.200	4.70	5.10	
G	0.050		1.270		TYP.
H	0.228	0.244	5.80	6.20	
J	0.150	0.157	3.80	4.00	
K	0.016	0.050	0.40	1.27	
θ	0°	8°	0°	8°	

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C (Unless Otherwise Specified)

N-Channel

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	30			V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.65	0.9	1.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =5.6A		19	25	mΩ
		V _{GS} =4.5V, I _D =5.0A		22	31	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f =1MHz		535		pF
Output Capacitance	C _{oss}			130		
Reverse Transfer Capacitance	C _{rss}			36		
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} =15V, V _{GS} =4.5V, I _D =5.6A		4.8		nC
Gate-Source Charge	Q _{gs}			1.2		
Gate-Drain Charge	Q _{gd}			1.7		
Turn-On Delay Time	t _{d(on)}	V _{GS} =4.5V, V _{DS} =15V, I _D =1A, R _{GEN} =2.8Ω		12		ns
Turn-On Rise Time	t _r			52		
Turn-Off Delay Time	t _{d(off)}			17		
Turn-Off Fall Time	t _f			10		
Drain-Source Diode Characteristics and Maximum Ratings						
Body-Diode Continuous Current	I _S				5.6	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =5.6A		0.8	1.2	V

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

P-Channel

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	-30			V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V			-1	μA
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.6	-0.9	-1.4	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-4.4A		38	55	mΩ
		V _{GS} =-4.5V, I _D =-4A		45	66	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-15V,V _{GS} =0V,f =1MHz		680		pF
Output Capacitance	C _{oss}			105		
Reverse Transfer Capacitance	C _{rss}			68		
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} =-15V,V _{GS} =-10V,I _D =-4.4A		7.2		nC
Gate-Source Charge	Q _{gs}			1.2		
Gate-Drain Charge	Q _{gd}			1.6		
Turn-On Delay Time	t _{d(on)}	V _{GS} =-10V,V _{DS} =-15V,I _D =-1A, R _{GEN} =2.5Ω,R _L =15Ω		15		ns
Turn-On Rise Time	t _r			63		
Turn-Off Delay Time	t _{d(off)}			21		
Turn-Off Fall Time	t _f			12		
Drain-Source Diode Characteristics and Maximum Ratings						
Body-Diode Continuous Current	I _S				-4.4	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-4.4A		-0.8	-1.2	V

Curve Characteristics

N-Channel

Fig. 1 - Typical Output Characteristics

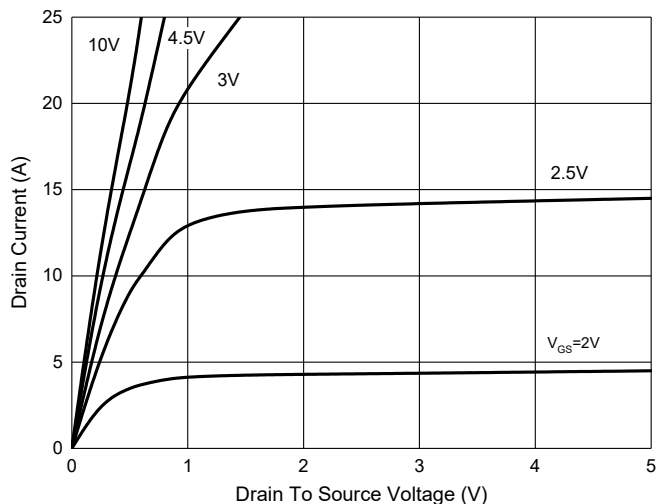


Fig. 2 - Transfer Characteristics

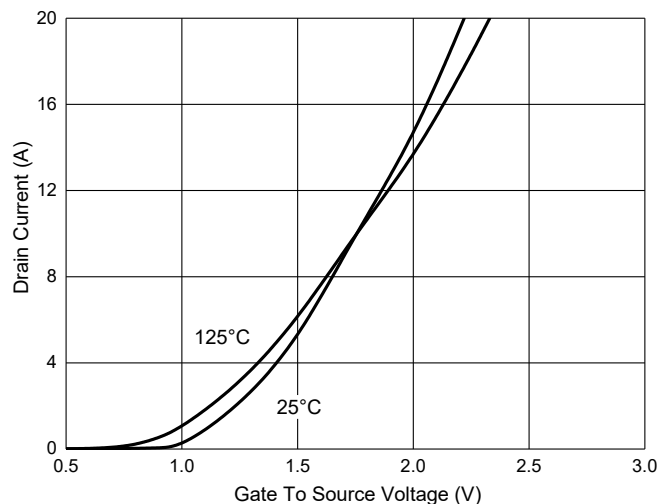


Fig. 3 - $R_{DS(ON)}-I_D$

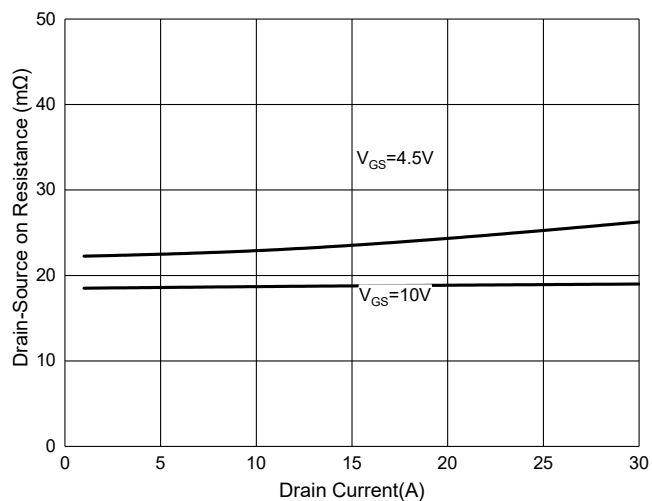


Fig. 4 - Normalized On Resistance Characteristics

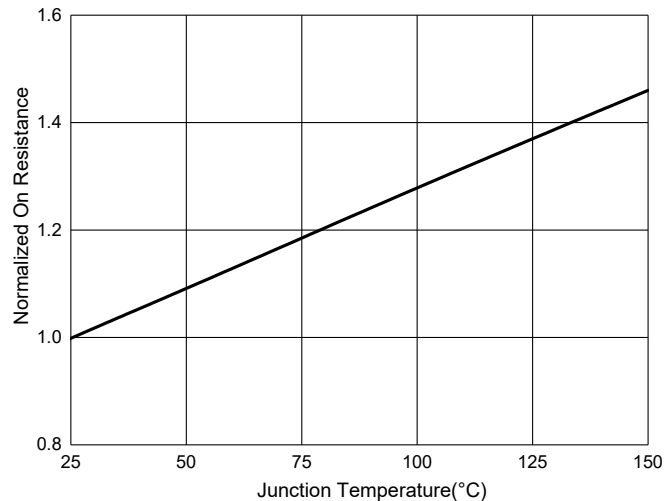


Fig. 5 - Capacitance Characteristics

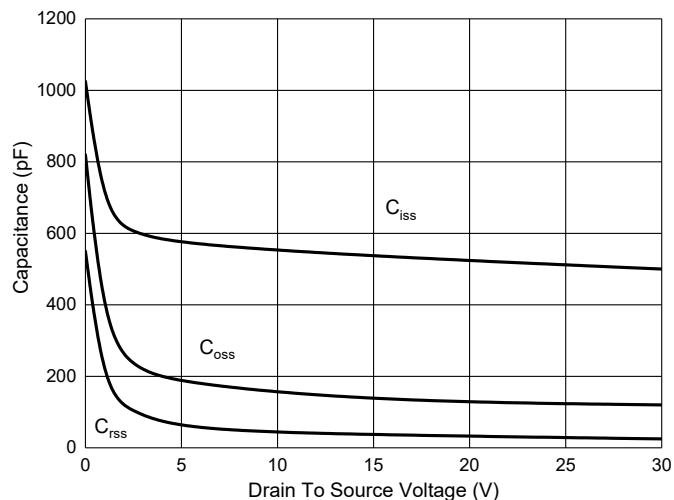
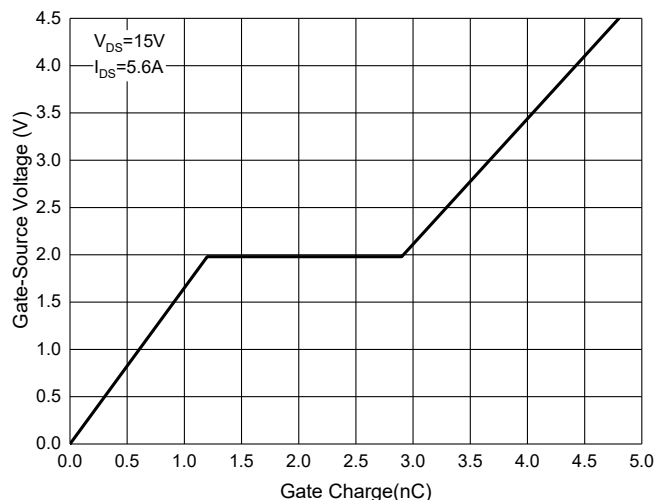


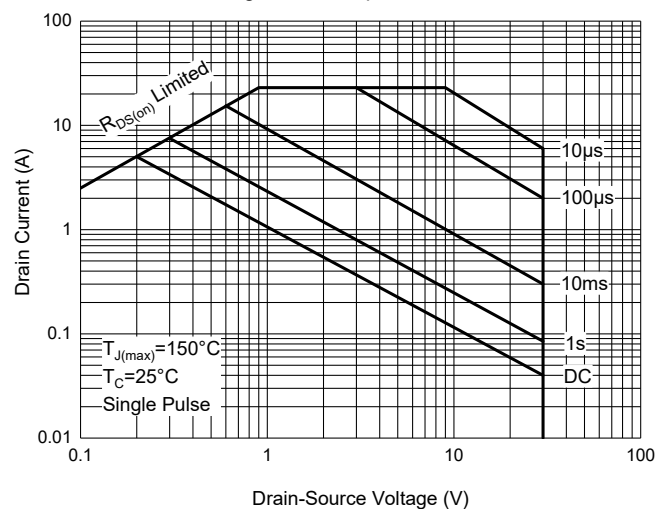
Fig. 6 - Gate Charge



Curve Characteristics

N-Channel

Fig. 7 - Safe Operation Area



P-Channel

Fig. 8 - Typical Output Characteristics

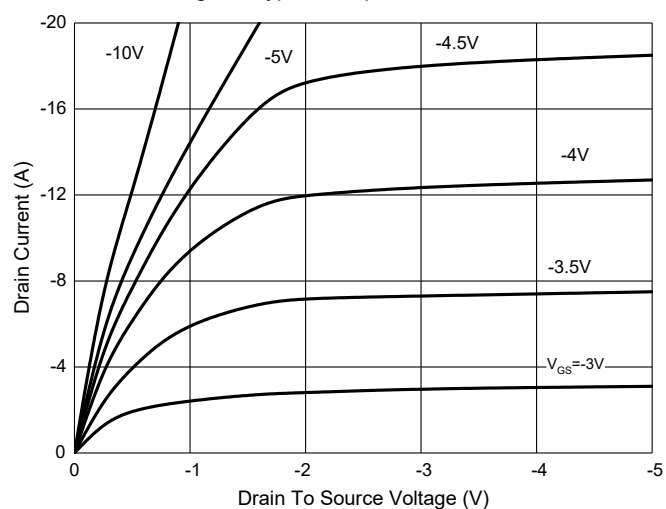


Fig. 9 - Transfer Characteristics

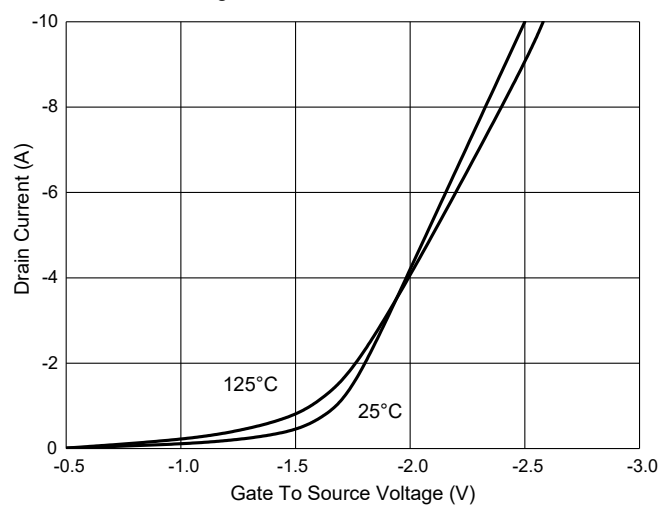


Fig. 10 - $R_{DS(ON)} - I_D$

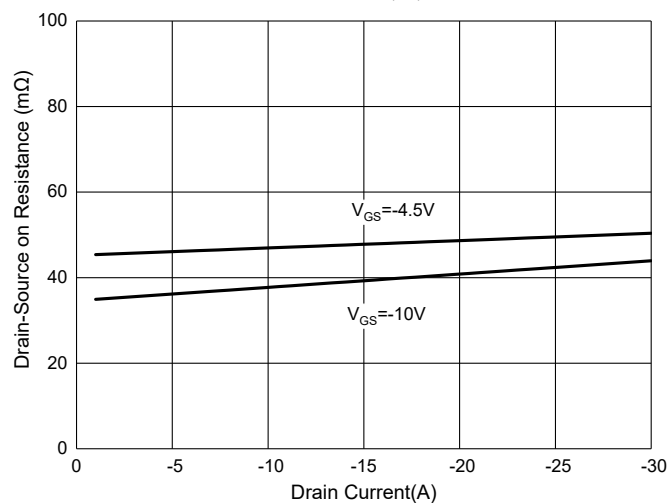
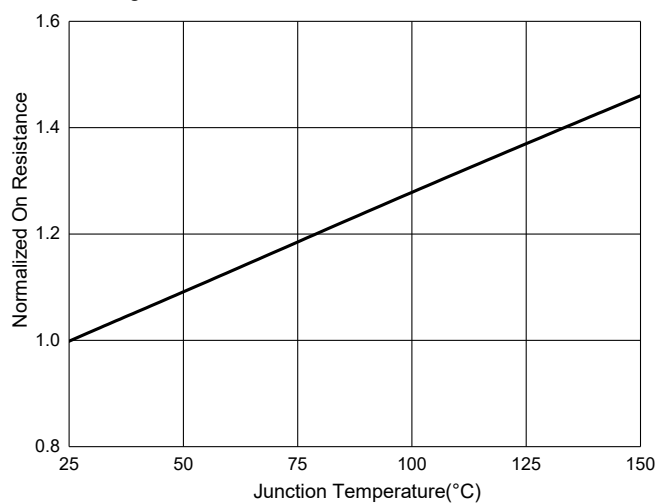


Fig. 11 - Normalized On Resistance Characteristics



Curve Characteristics

P-Channel

Fig. 12 - Capacitance Characteristics

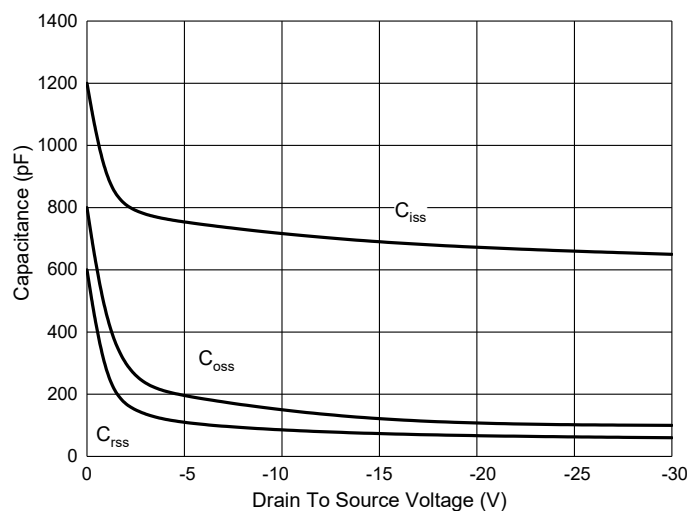


Fig. 13 - Gate Charge

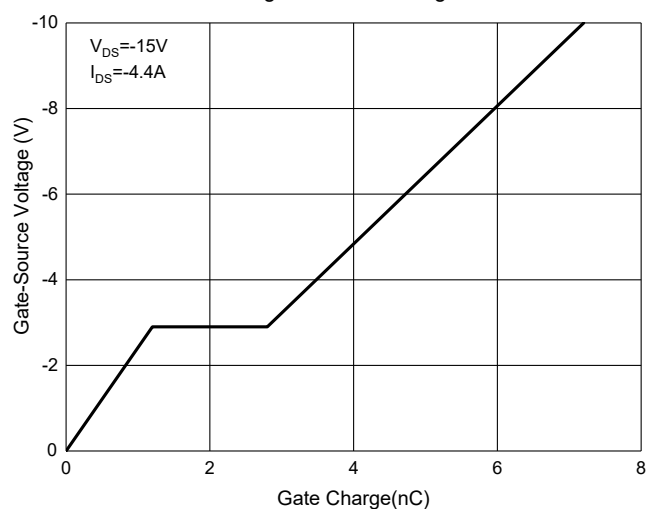
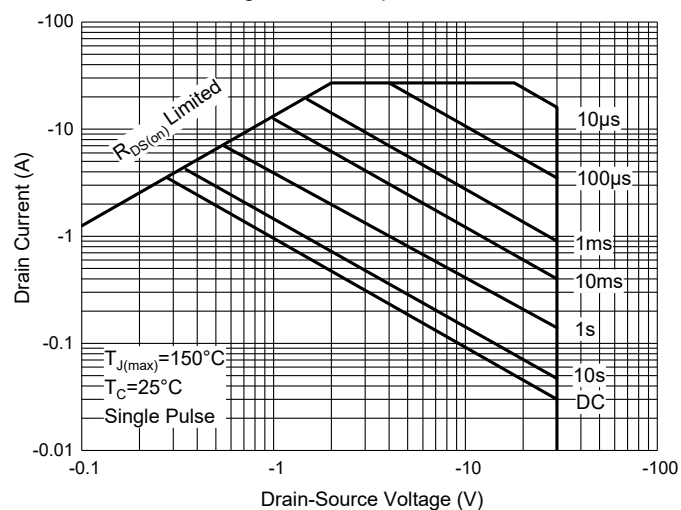


Fig. 14 - Safe Operation Area



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 4Kpcs/Reel

IMPORTANT NOTICE

Micro Commercial Components Corp. reserves the right to make changes without further notice to any product herein to make corrections, modifications , enhancements , improvements , or other changes . **Micro Commercial Components Corp** . does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights ,nor the rights of others . The user of products in such applications shall assume all risks of such use and will agree to hold **Micro Commercial Components Corp** . and all the companies whose products are represented on our website, harmless against all damages.

LIFE SUPPORT

MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation.

CUSTOMER AWARENESS

Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. **MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources.** MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.