

Features

- $V_{DS} = 20V, I_D = 6A$
 $R_{DS(ON)} < 34.5m\Omega @ V_{GS} = 2.5V$
 $R_{DS(ON)} < 24.5m\Omega @ V_{GS} = 4.5V$
- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

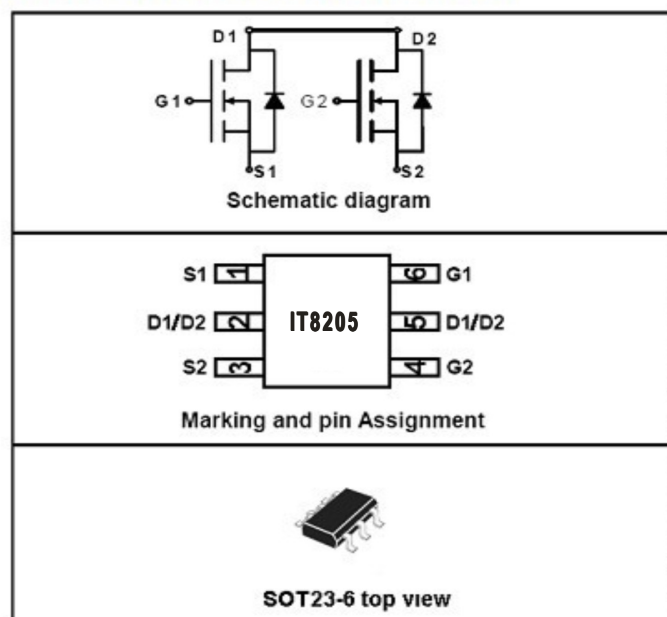
Applications

- Battery protection
- Load switch
- Power management

Construction

- Silicon epitaxial planer

External Dimensions: (Unit:mm)



Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 10	V
Drain Current-Continuous@ Current-Pulsed (Note 1)	I_D	6	A
	I_{DM}	25	A
Maximum Power Dissipation	P_D	1.5	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	°C

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	83	°C/W
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Electrical characteristics (Ta=25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$			0.8	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 10V, V_{DS} = 0V$			± 80	nA

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 10	V
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	I_{DM}	25	A
Maximum Power Dissipation	P_D	1.5	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	$^{\circ}\text{C}$

THERMAL CHARACTERISTICS

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Electrical characteristics (Ta=25 $^{\circ}\text{C}$)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =250μA	20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V,V _{GS} =0V			0.8	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±10V,V _{DS} =0V			±80	nA
Turn-on Delay Time	t _{d(on)}	V _{DD} =10V,I _D =1A V _{GS} =4.5V,R _{GEN} =6Ω		10	20	nS
Turn-on Rise Time	t _r			11	25	nS
Turn-Off Delay Time	t _{d(off)}			35	70	nS
Turn-Off Fall Time	t _f			30	60	nS
Total Gate Charge	Q _g	V _{DS} =10V,I _D =6A, V=4.5V		10	15	nC
Gate-Source Charge	Q _{gs}			2.3		nC
Gate-Drain Charge	Q _{gd}			3		nC
DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode Forward Voltage (Note 3)	V _{SD}	V=0V,I=1.7A			1.2	V
Diode Forward Current (Note 2)	I _s			1.7		A

NOTES:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production testing.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

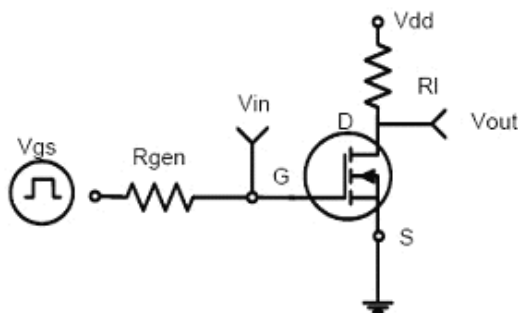


Figure 1: Switching Test Circuit

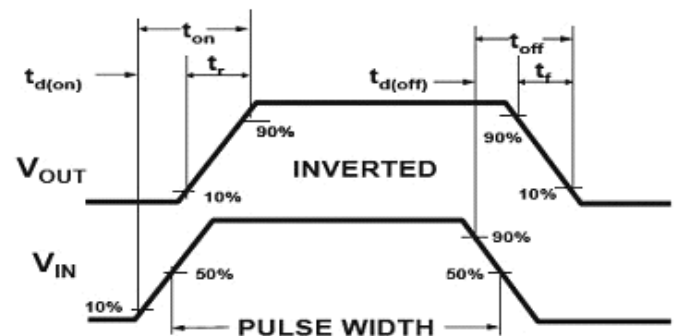


Figure 2: Switching Waveforms

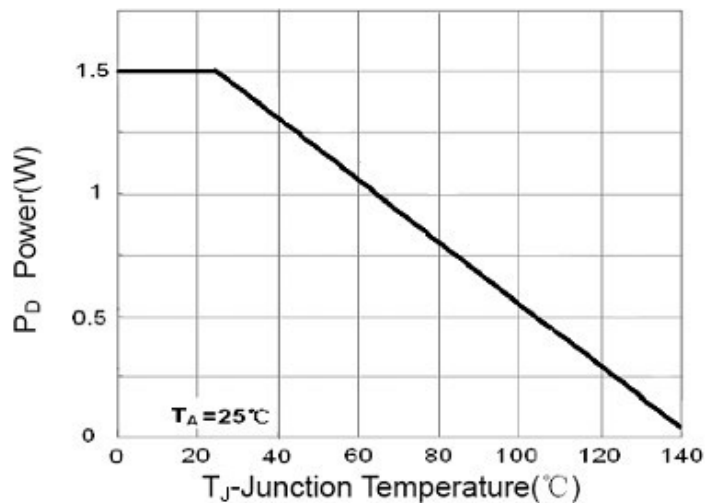


Figure 3 Power Dissipation

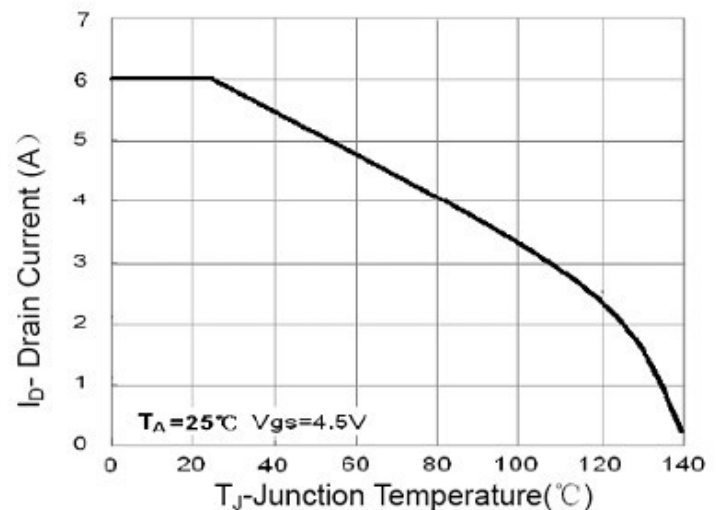


Figure 4 Drain Current

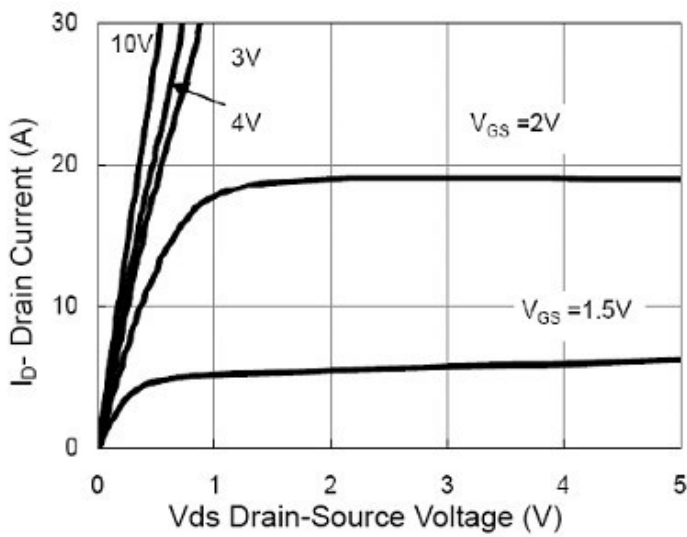


Figure 5 Output CHARACTERISTICS

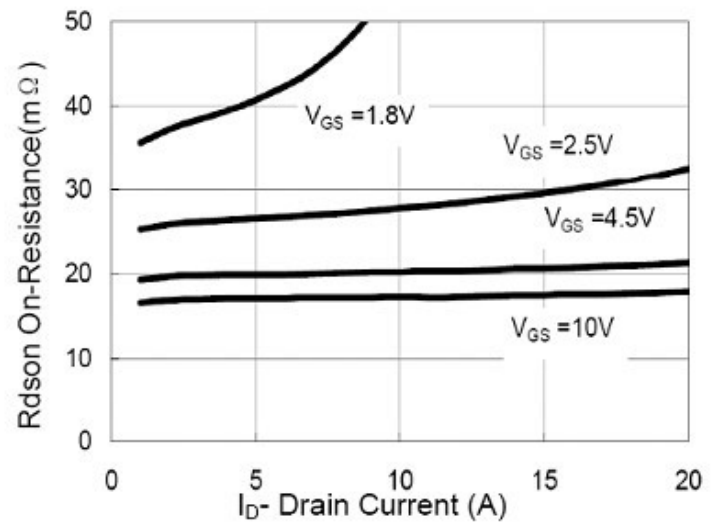


Figure 6 Drain-Source On-Resistance

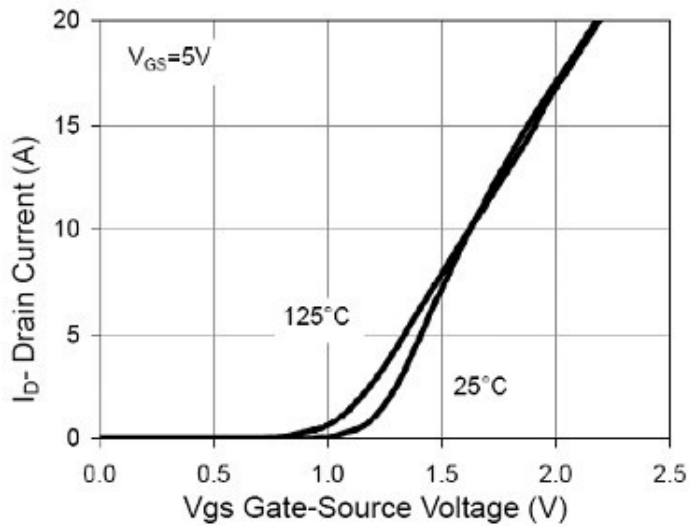


Figure 7 Transfer Characteristics

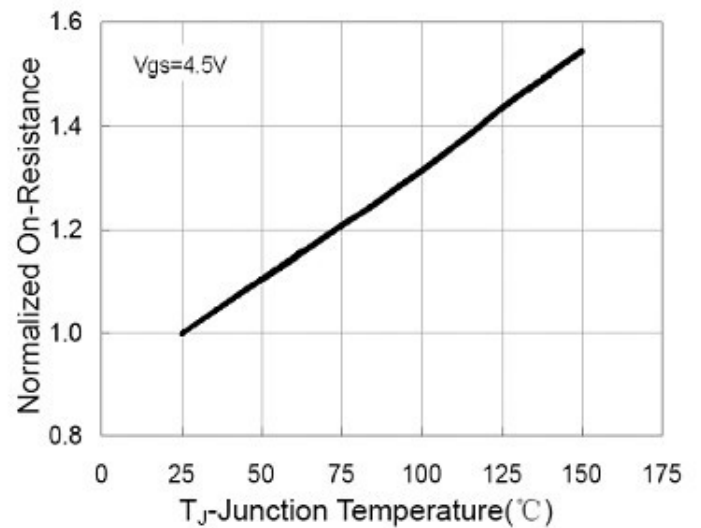


Figure 8 Drain-Source On-Resistance

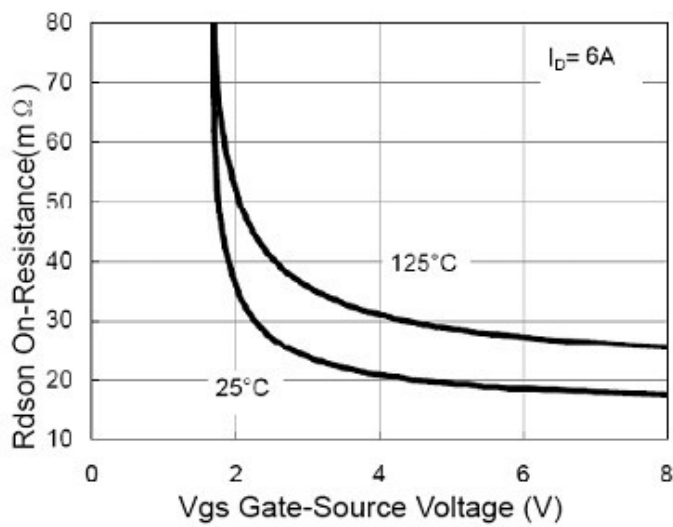


Figure 9 Rdson vs Vgs

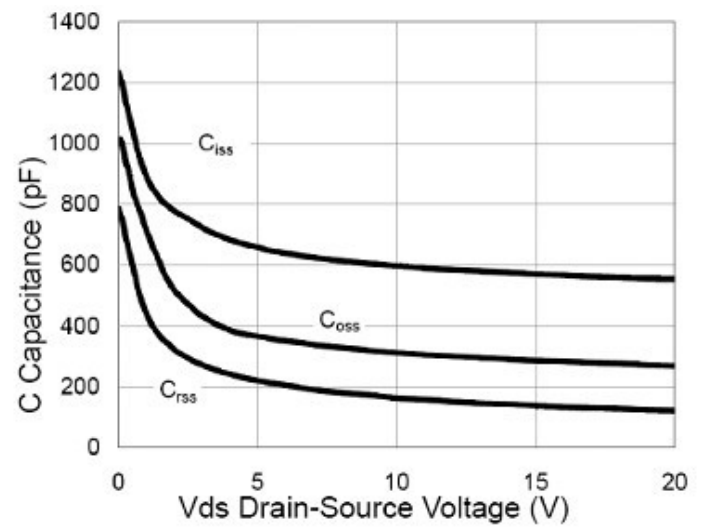


Figure 10 Capacitance vs Vds

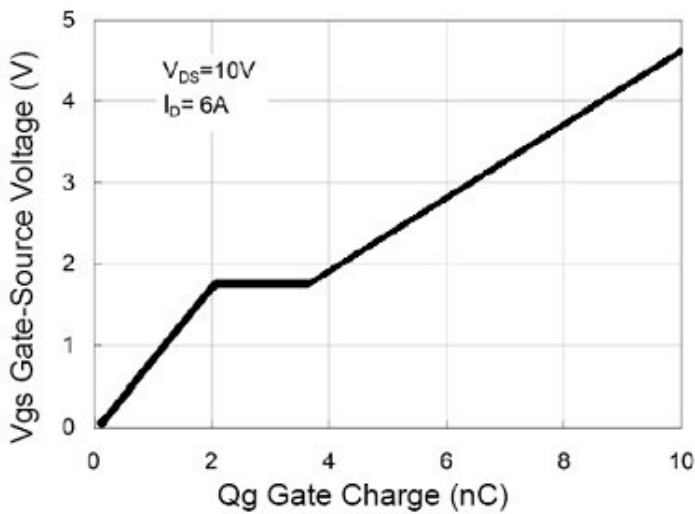


Figure 11 Gate Charge

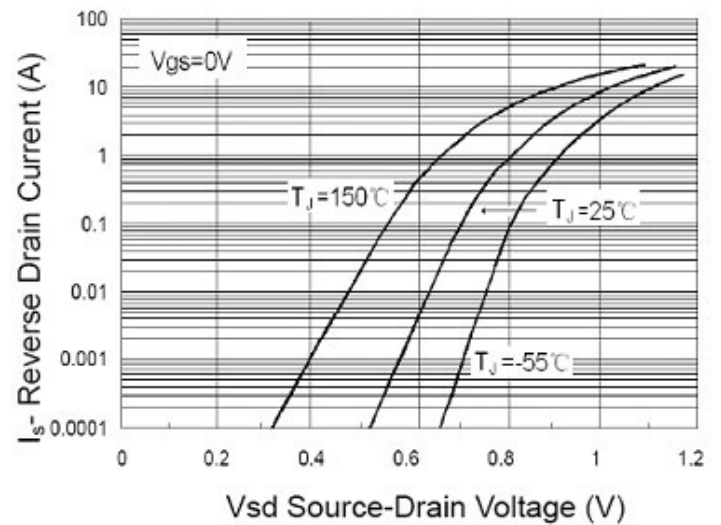


Figure 12 Source- Drain Diode Forward

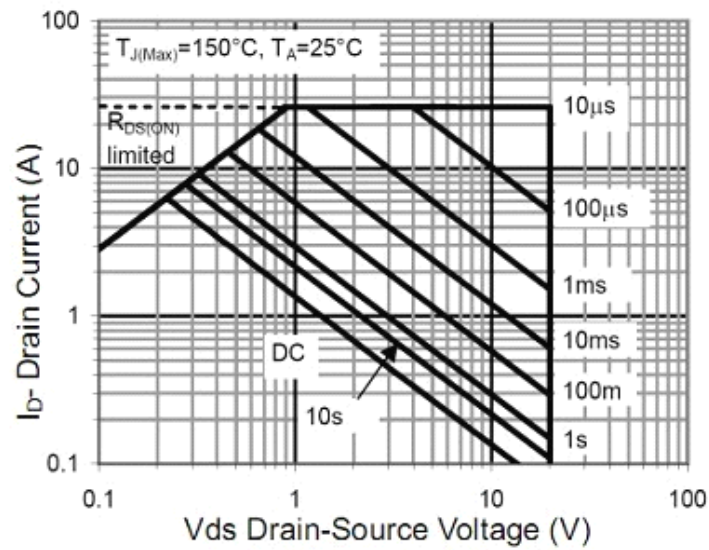


Figure 13 Safe Operation Area

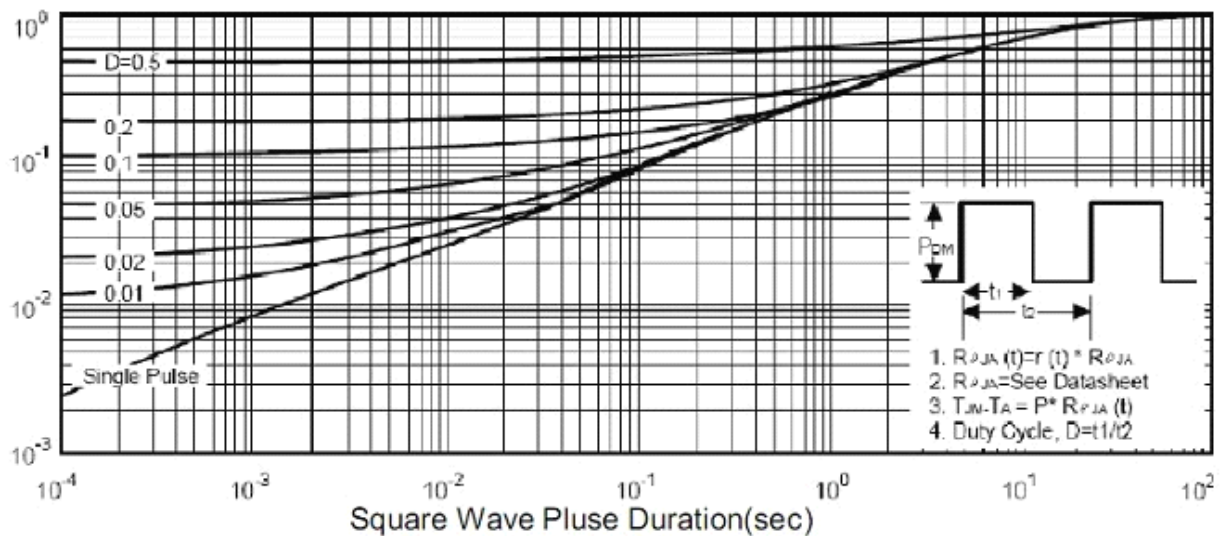
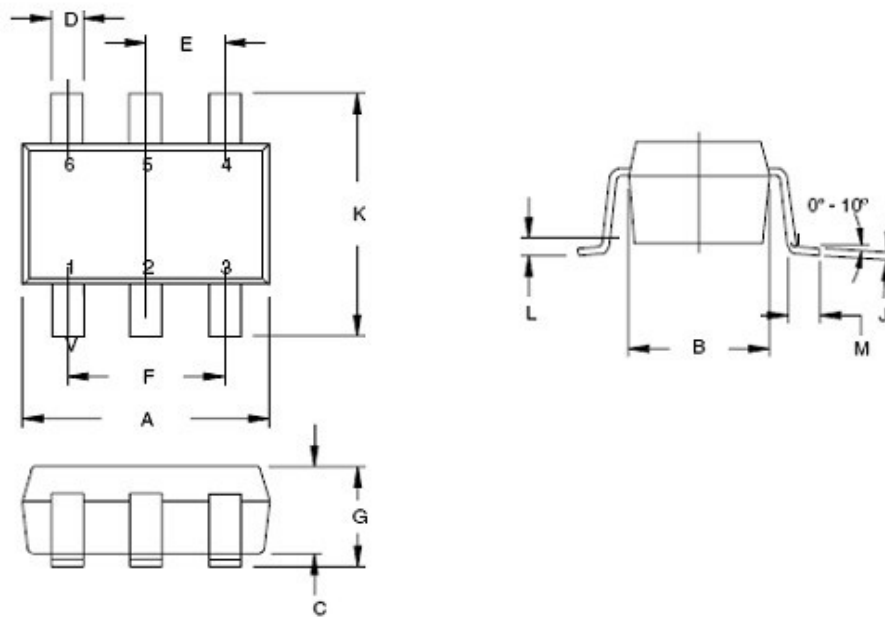


Figure 14 Normalized Maximum Transient Thermal Impedance

PACKAGE OUTLINE



PACKAGE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.80	3.05	0.110	0.120
B	1.50	1.75	0.059	0.070
C	0.90	1.30	0.036	0.051
D	0.35	0.50	0.014	0.020
E	0.85	1.05	0.033	0.040
F	1.70	2.10	0.067	0.083
G	0.90	1.45	0.036	0.057
J	0.090	0.20	0.0035	0.008
L	0.20TYP	0.20TYP	0.007TYP	0.007TYP
M	0.35	0.55	0.014	0.022