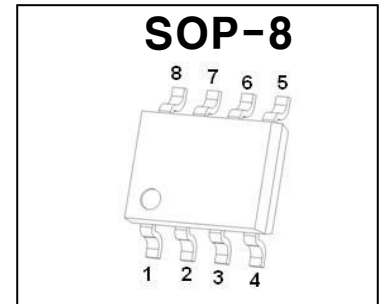


P Channel MOS FET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-20V	8.5mΩ@-4.5V	-14A
	10.5mΩ@-2.5V	
	14mΩ@-1.8V	



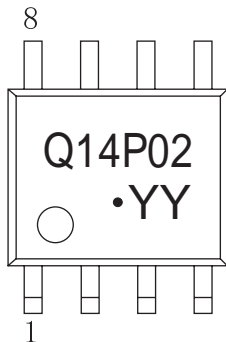
FEATURE

- High Density Cell Design for Ultra Low Rdson
- Fully Characterized Avalanche Voltage and Current
- Good Stability and Uniformity With High E_{AS}
- Excellent Package for Good Heat Dissipation

APPLICATION

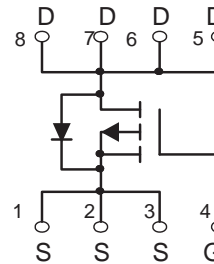
- Load Switch
- Battery Protection

MARKING



Q14P02 = Device code
 Solid dot=Pin1 indicator
 Solid dot = Green molding compound device,
 if none, the normal device
 YY=Date Code

Equivalent Circuit



ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	- 20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	-14	A
Pulsed Drain Current (note 1)	I_{DM}	-56	A
Power Dissipation	P_D	1.4	W
Thermal Resistance, Junction-to-ambient(note 2)	$R_{\theta JA}$	89.29	$^\circ\text{C/W}$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^\circ\text{C}$



MOSFET ELECTRICAL CHARACTERISTICS

$T_a=25^{\circ}\text{C}$ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -18V, V_{GS} = 0V$			4	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 12V, V_{DS} = 0V$			± 100	nA
Gate threshold voltage (note3)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.4	-0.7	-1.2	V
Drain-source on-resistance(note 3)	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -14A$		5.0	8.5	m Ω
		$V_{GS} = -2.5V, I_D = -12A$		7.0	10.5	m Ω
		$V_{GS} = -1.8V, I_D = -5A$		10.5	14	m Ω
Forward tranconductance(note 3)	g_{FS}	$V_{DS} = -5V, I_D = -14A$		45		S
Diode forward voltage (note 3)	V_{SD}	$I_S = -14A, V_{GS} = 0V$			-1.2	V
DYNAMIC CHARAC TERISTICS (note 4)						
Input Capacitance	C_{iss}	$V_{DS} = -10V, V_{GS} = 0V, f = 1MHz$		3500		pF
Output Capacitance	C_{oss}			577		pF
Reverse Transfer Capacitance	C_{rss}			445		pF
SWITCHING CHARACTERISTICS (note 4)						
Turn-on delay time	$t_{d(on)}$	$V_{GS} = -4.5V, V_{DD} = -10V, R_L = 0.5\Omega$ $R_{GEN} = 3\Omega$		18		ns
Turn-on rise time	t_r			42		ns
Turn-off delay time	$t_{d(off)}$			85		ns
Turn-off fall time	t_f			23		ns
Total Gate Charge	Q_g	$V_{DS} = -10V, I_D = -20A,$ $V_{GS} = -4.5V$		55		nC
Gate-Source Charge	Q_{gs}			10		nC
Gate-Drain Charge	Q_{gd}			15		nC

Notes :

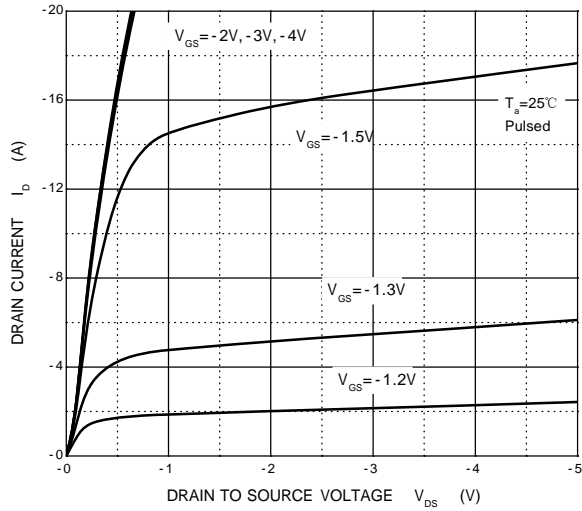
- 1.Repetitive Rating:Pulse width limited by maximum junction temperature.
- 2.Surface mounted on FR4 board , $t \leq 10$ sec.
3. Pulse Test : Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. Garanted by design, not subject to production.



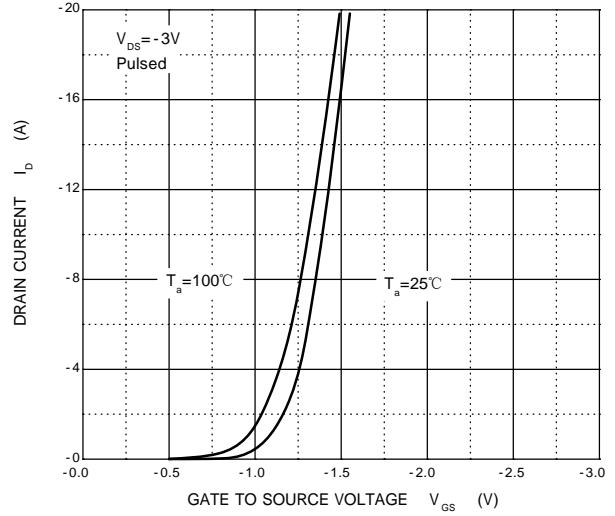
FTK14P02S

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

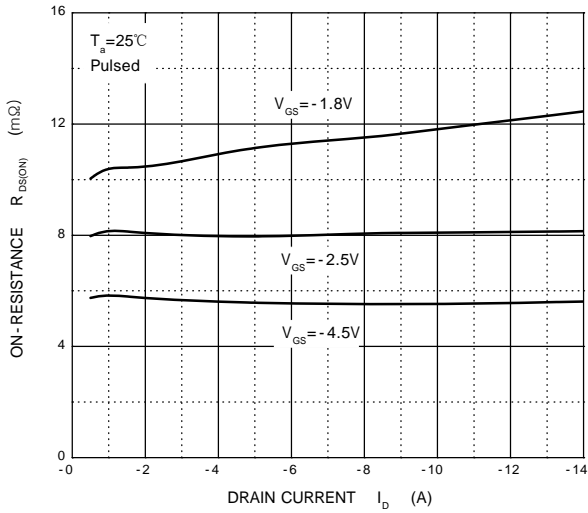
Output Characteristics



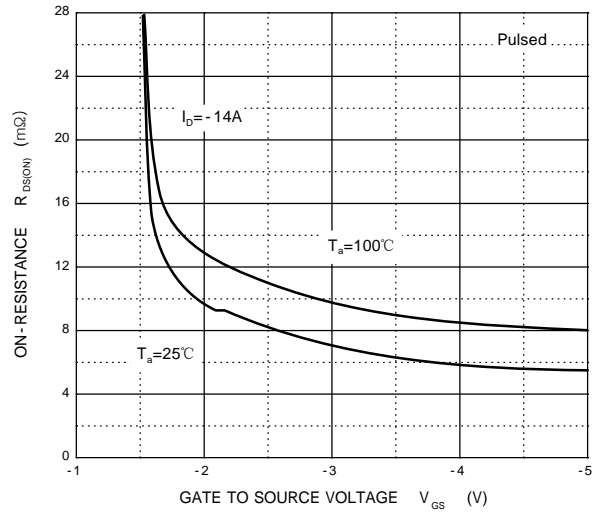
Transfer Characteristics



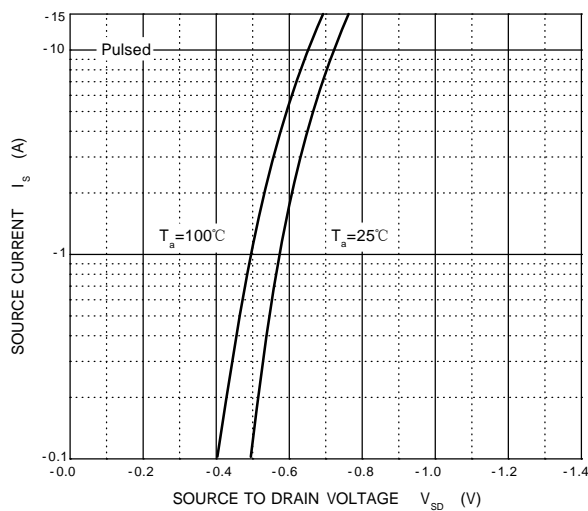
$R_{DS(ON)}$ — I_D



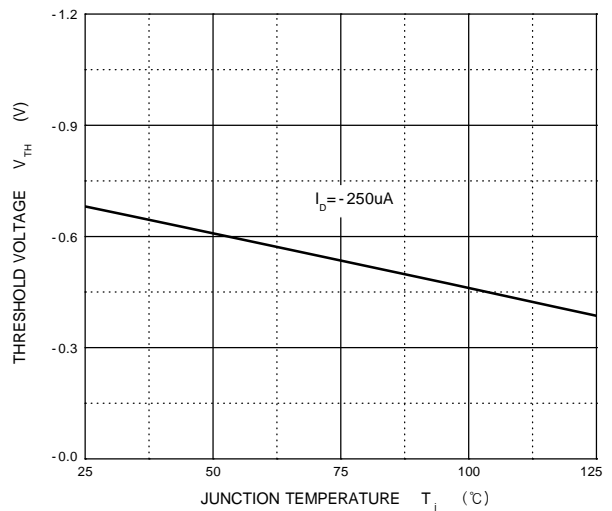
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}

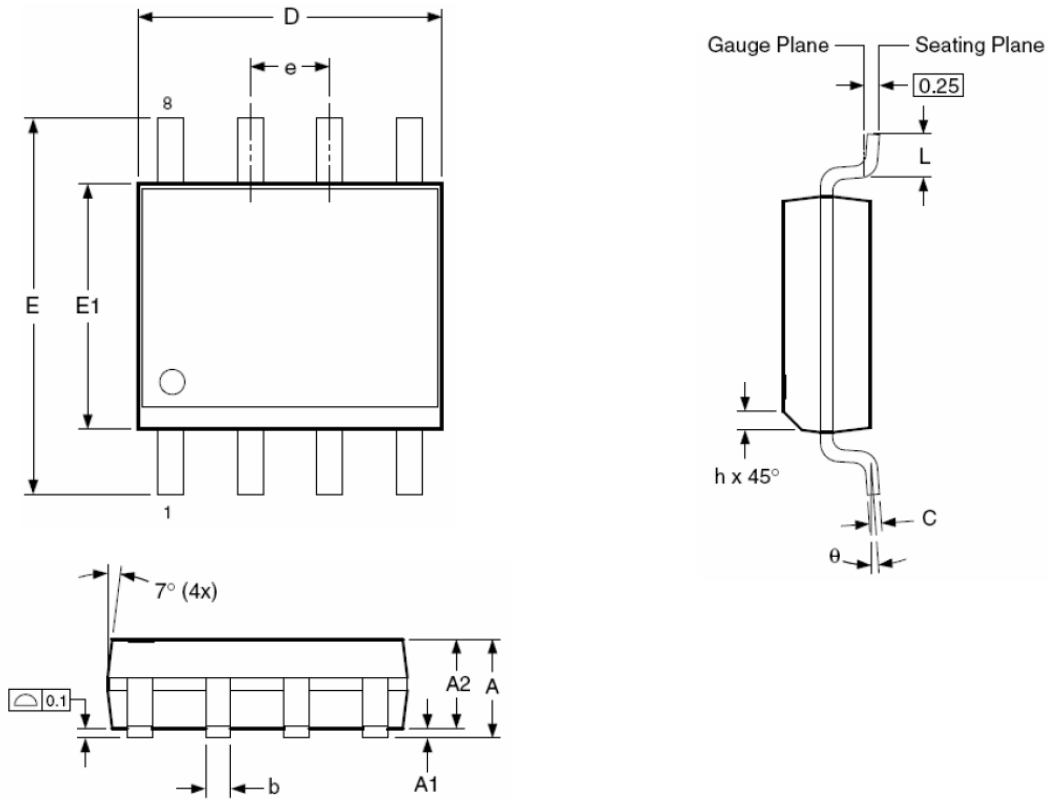


Threshold Voltage

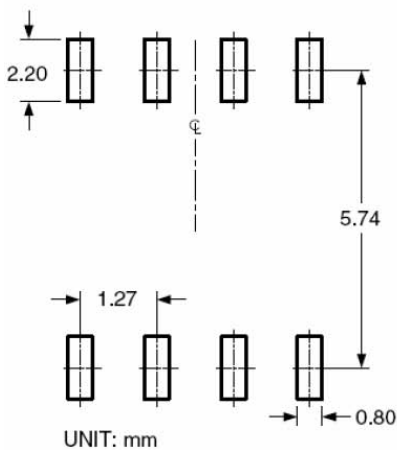


SOP-8 PACKAGE INFORMATION

Dimensions in Millimeters (UNIT:mm)



RECOMMENDED LAND PATTERN



Dimensions in millimeters

Symbols	Min.	Nom.	Max.
A	1.35	1.65	1.75
A1	0.10	—	0.25
A2	1.25	1.50	1.65
b	0.31	—	0.51
c	0.17	—	0.25
D	4.80	4.90	5.00
E1	3.80	3.90	4.00
e	1.27 BSC		
E	5.80	6.00	6.20
h	0.25	—	0.50
L	0.40	—	1.27
θ	0°	—	8°

Dimensions in inches

Symbols	Min.	Nom.	Max.
A	0.053	0.065	0.069
A1	0.004	—	0.010
A2	0.049	0.059	0.065
b	0.012	—	0.020
c	0.007	—	0.010
D	0.189	0.193	0.197
E1	0.150	0.154	0.157
e	0.050 BSC		
E	0.228	0.236	0.244
h	0.010	—	0.020
L	0.016	—	0.050
θ	0°	—	8°

NOTES:

1. All dimensions are in millimeters.
2. Dimensions are inclusive of plating
3. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 6 mils.
4. Dimension L is measured in gauge plane.
5. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.