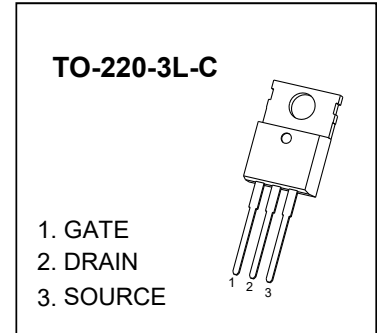




TO-220-3L-C Plastic-Encapsulate MOSFETS

CJP50P06S P-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-60V	25mΩ@-10V	-50A



GENERAL DESCRIPTION

The CJP50P06S uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge. It can be used in a wide variety of applications.

FEATURE

- Advanced trench process technology
- Reliable and rugged
- High density cell design for ultra low On-Resistance

APPLICATION

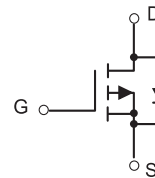
- Power management in notebook computer
- Portable equipment and battery powered systems

MARKING



P50P06S = Device code
 Solid dot = Green molding compound device,
 if none, the normal device
 XXXX = Code

EQUIVALENT CIRCUIT



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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D ①	-50	A
Pulsed Drain Current	I_{DM} ②	-200	A
Single Pulsed Avalanche Energy	E_{AS} ③	160	mJ
Power Dissipation	P_D ①	95	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$ ⑥	62.5	°C/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$ ①	1.31	°C/W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	°C

MOSFET ELECTRICAL CHARACTERISTICS

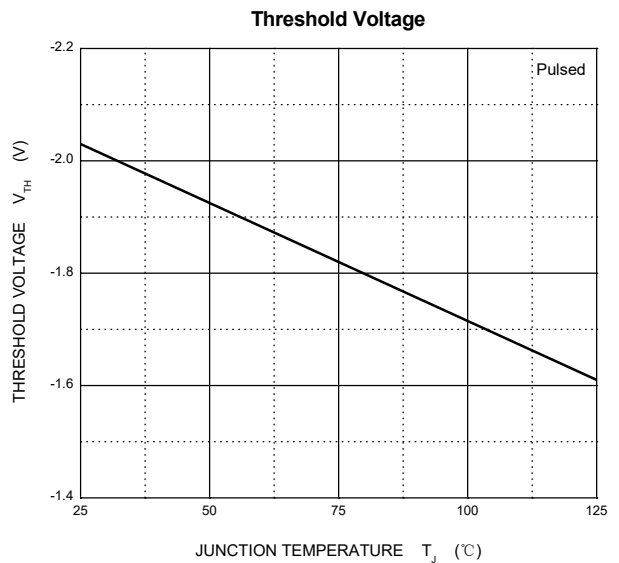
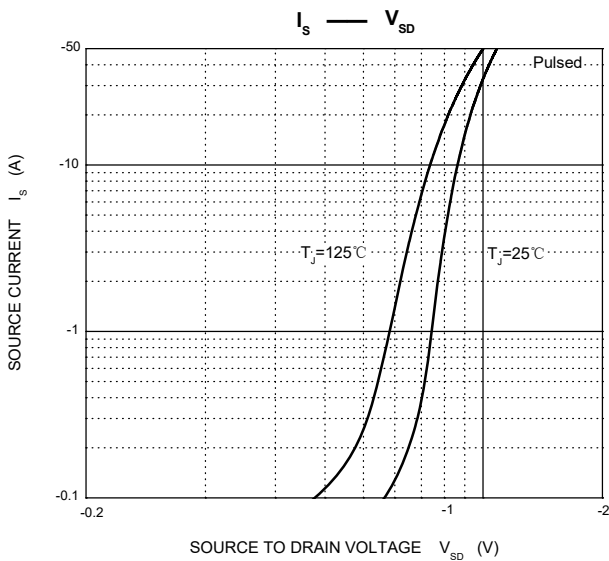
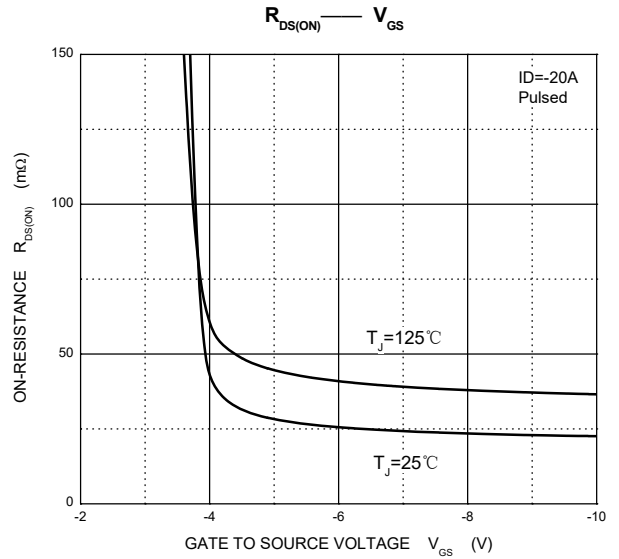
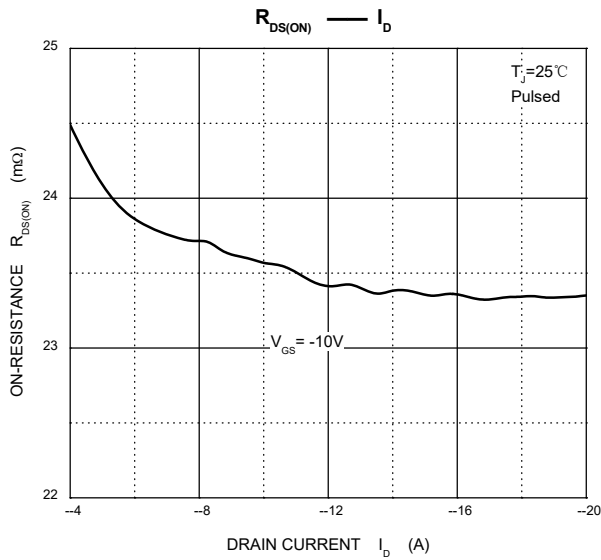
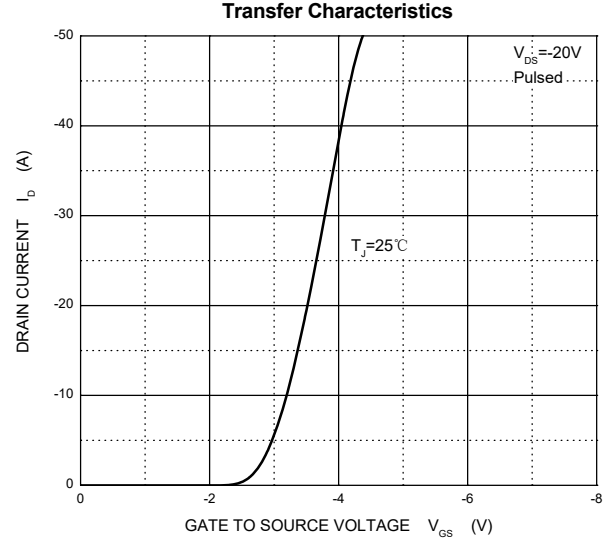
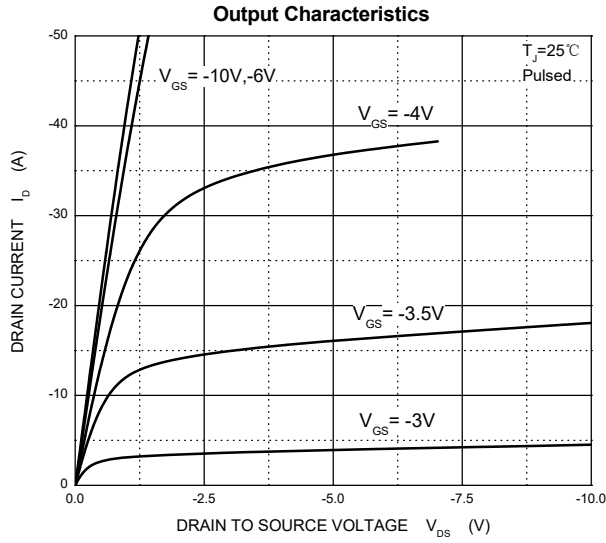
$T_a=25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-60			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -48V, V_{GS} = 0V$	$T_J = 25^\circ\text{C}$		1.0	μA
			$T_J = 125^\circ\text{C}$		100	
Gate-body leakage current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
On characteristics ^④						
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.0	-2.0	-3.0	V
Static drain-source on-state resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -20A$		25	35	m Ω
Dynamic characteristics ^⑤						
Input capacitance	C_{iss}	$V_{DS} = -25V, V_{GS} = 0V, f = 1MHz$		3005		pF
Output capacitance	C_{oss}			184		
Reverse transfer capacitance	C_{rss}			167		
Gate resistance	R_g	$f = 1MHz$		4.0		Ω
Switching characteristics ^⑤						
Total gate charge	Q_g	$V_{GS} = -10V, V_{DS} = -30V, I_D = -20A$		72		nC
Gate-source charge	Q_{gs}			15		
Gate-drain charge	Q_{gd}			17		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -30V, R_G = 3\Omega, R_L = 1.5\Omega, V_{GS} = -10V$		16		ns
Turn-on rise time	t_r			18		
Turn-off delay time	$t_{d(off)}$			39		
Turn-off fall time	t_f			44		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage	V_{SD} ^④	$V_{GS} = 0V, I_S = -20A$			-1.2	V
Continuous drain-source diode forward current	I_S ^①				-50	A
Pulsed drain-source diode forward current	I_{SM} ^②				-200	A

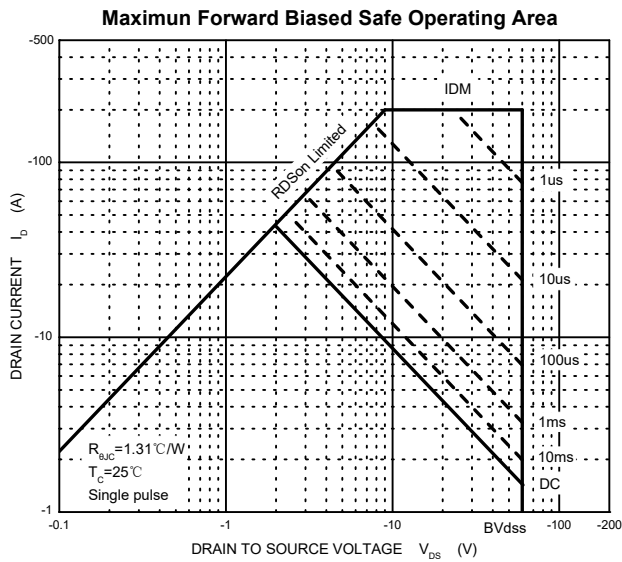
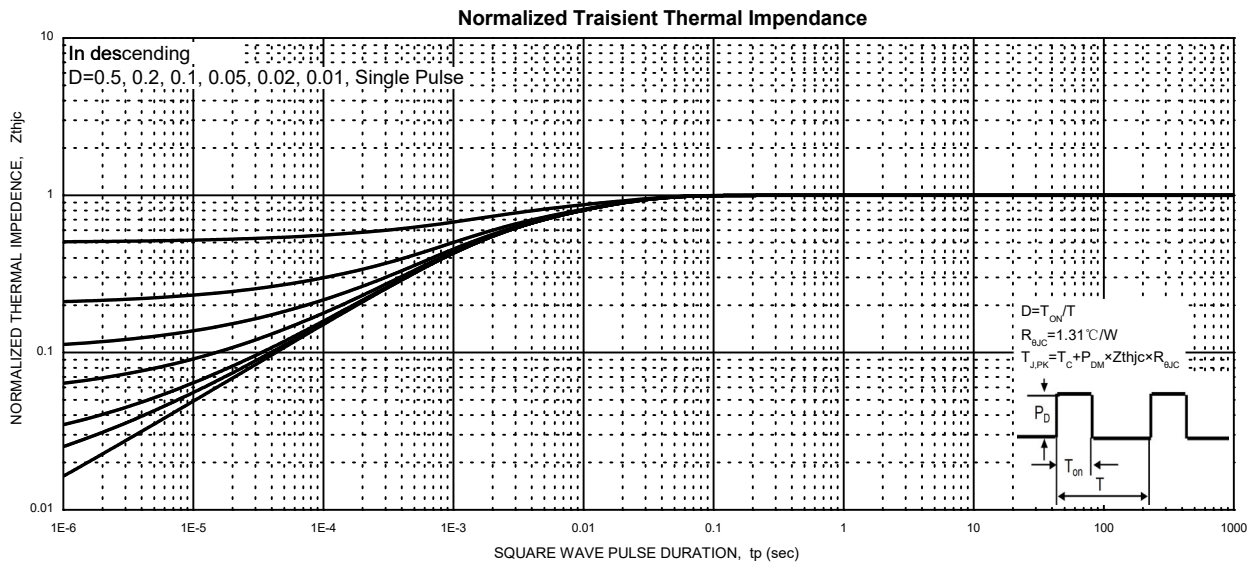
Notes:

- $T_C=25^\circ\text{C}$ Limited only by maximum temperature allowed.
- $P_W \leq 10\mu s$, Duty cycle $\leq 1\%$.
- EAS condition: $V_{DD} = -25V, V_{GS} = -10V, L = 0.5mH, R_g = 25\Omega$ Starting $T_J = 25^\circ\text{C}$.
- Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- Guaranteed by design, not subject to production.
- The value of $R_{\theta JA}$ is measured with the device in a still air environment with $T_a = 25^\circ\text{C}$.

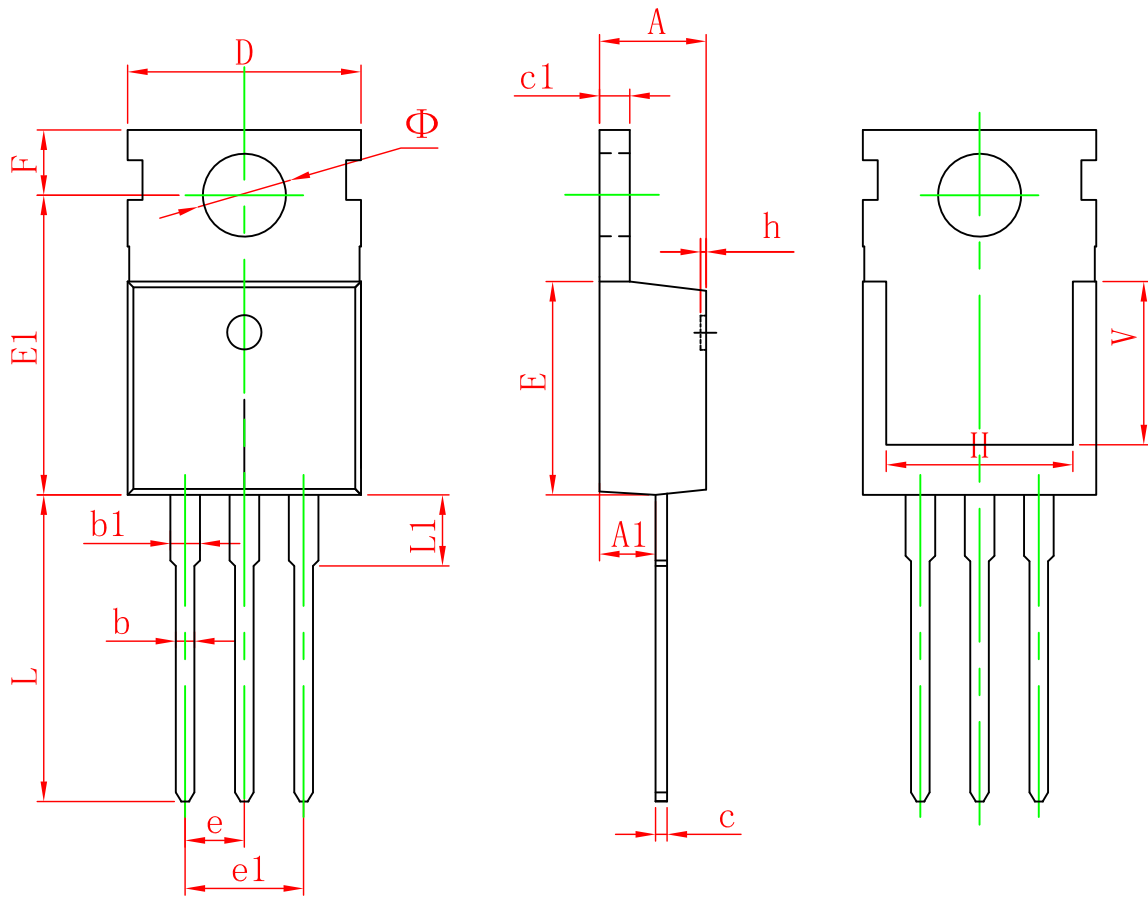
Typical Characteristics



Typical Characteristics



TO-220-3L-C Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.400	4.600	0.173	0.181
A1	2.250	2.550	0.089	0.100
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.330	0.650	0.013	0.026
c1	1.200	1.400	0.047	0.055
D	9.910	10.250	0.390	0.404
E	8.950	9.750	0.352	0.384
E1	12.650	12.950	0.498	0.510
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
F	2.650	2.950	0.104	0.116
H	7.900	8.100	0.311	0.319
h	0.000	0.300	0.000	0.012
L	12.900	13.400	0.508	0.528
L1	2.850	3.250	0.112	0.128
V	7.500 REF.		0.295 REF.	
Φ	3.400	3.800	0.134	0.150