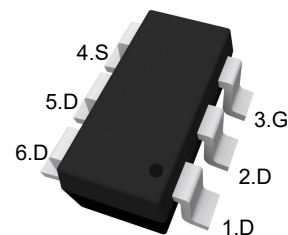


P-Channel Enhancement Mode Power MOSFET

Features

- High density cell design for ultra low $R_{DS(on)}$
- Excellent package for good heat dissipation
- $V_{DS} = -60V, I_D = -4A$
 $R_{DS(on)} < 120m\Omega @ V_{GS} = -10V$
- AEC-Q101 qualified (Automotive grade with suffix "Q".)
- Expsemi electronics

SOT-23-6

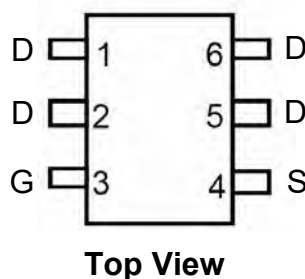


Marking Code: KL

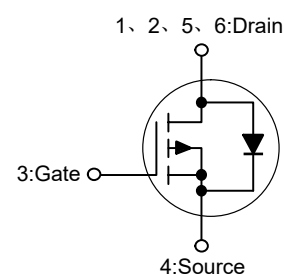
Applications

- PWM applications
- Load switch
- Power management

Pin Assignment



Schematic Diagram



Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$-V_{DS}$	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	$-I_D$	4	A
Drain Current-Pulsed ^{Note1}	$-I_{DM}$	12	A
Maximum Power Dissipation	P_D	1.15	W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Ambient ^{Note2}	$R_{\theta JA}$	108	°C/W
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Electrical Characteristics

(Ta=25°C unless otherwise specified)

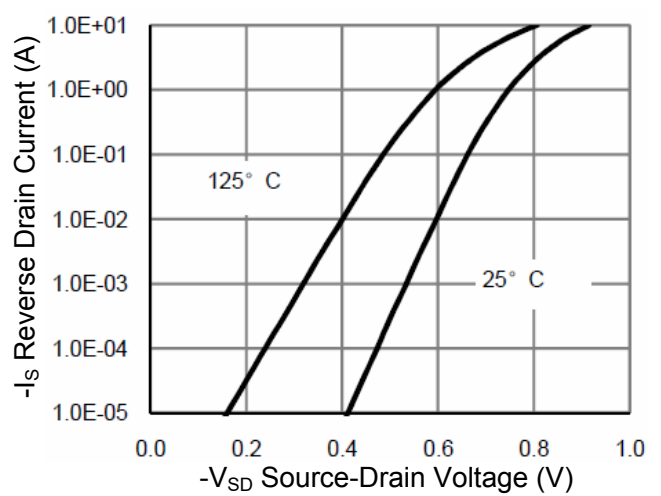
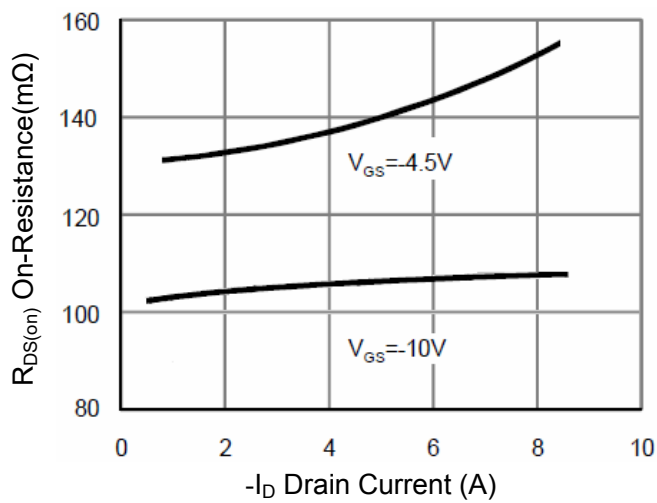
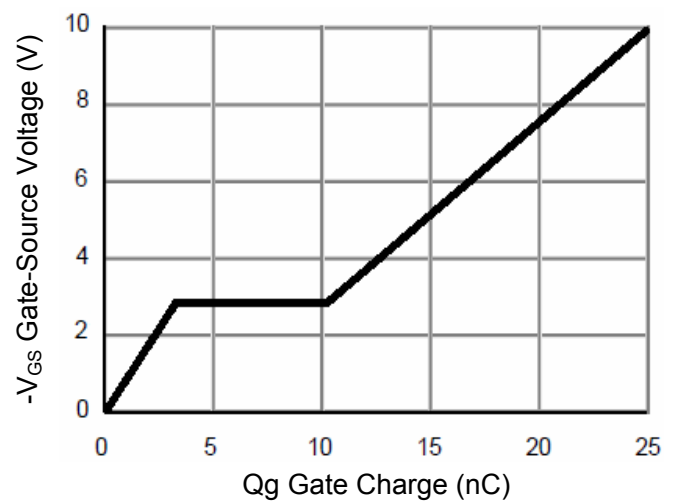
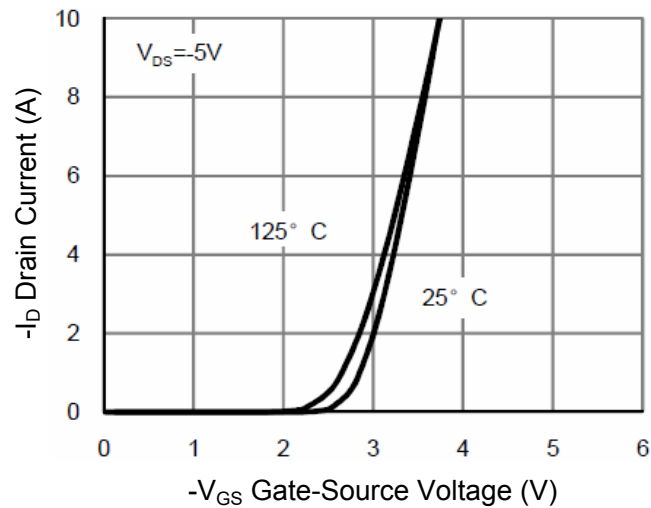
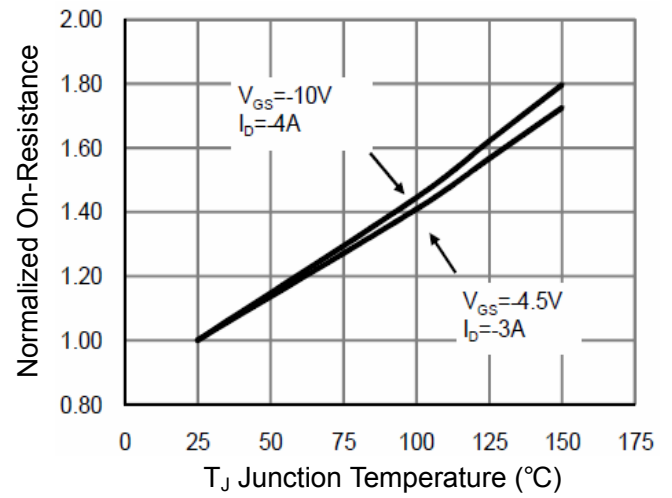
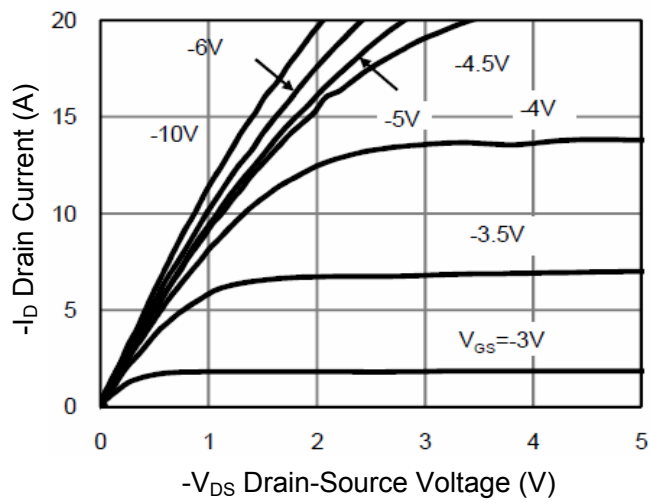
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$-V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	60	--	--	V
Zero Gate Voltage Drain Current	$-I_{DSS}$	$V_{DS}=-60V, V_{GS}=0V$	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	--	--	± 100	nA
Gate Threshold Voltage ^{Note3}	$-V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	1	--	2.5	V
Drain-Source On-Resistance ^{Note3}	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-4A$	--	106	120	m Ω
		$V_{GS}=-4.5V, I_D=-3A$	--	135	170	m Ω
Forward Transconductance ^{Note3}	g_{FS}	$V_{DS}=-5V, I_D=-4A$	--	10	--	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=-30V, V_{GS}=0V, f=1MHz$	--	930	--	pF
Output Capacitance	C_{oss}		--	85	--	pF
Reverse Transfer Capacitance	C_{rss}		--	35	--	pF
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=-30V, R_L=7.5\Omega$ $V_{GS}=-10V, R_{GEN}=3\Omega$	--	8	--	nS
Turn-on Rise Time	t_r		--	4	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	32	--	nS
Turn-off Fall Time	t_f		--	7	--	nS
Total Gate Charge	Q_g	$V_{DS}=-30V, I_D=-4A, V_{GS}=-10V$	--	25	--	nC
Gate-Source Charge	Q_{gs}		--	3	--	nC
Gate-Drain Charge	Q_{gd}		--	7	--	nC
Source-Drain Diode Characteristics						
Diode Forward Voltage ^{Note3}	$-V_{SD}$	$V_{GS}=0V, I_S=-4A$	--	--	1.2	V
Diode Forward Current ^{Note2}	$-I_S$		--	--	4	A

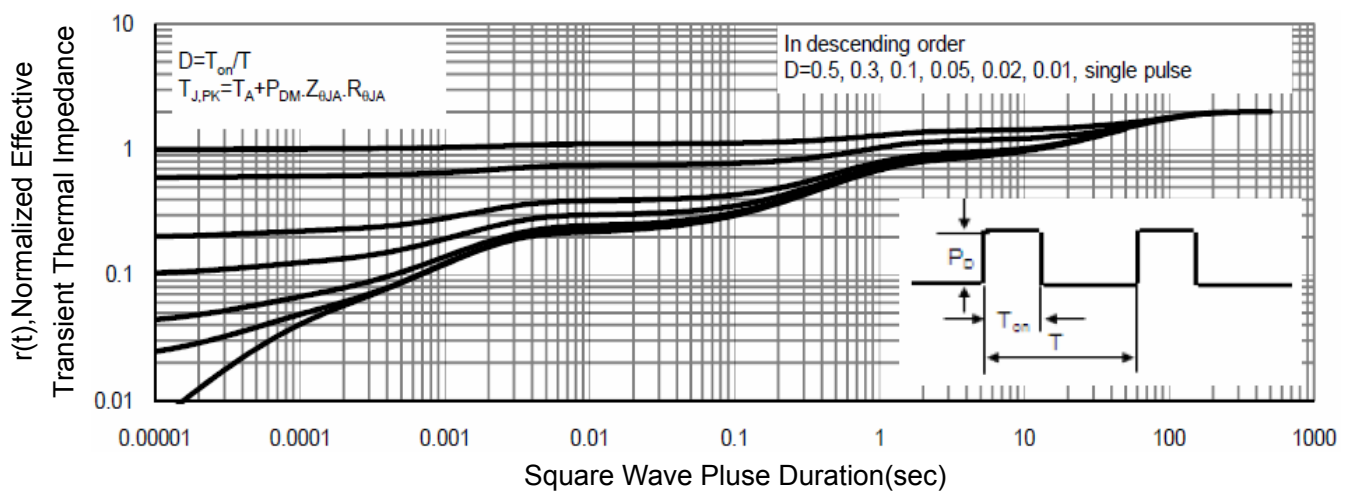
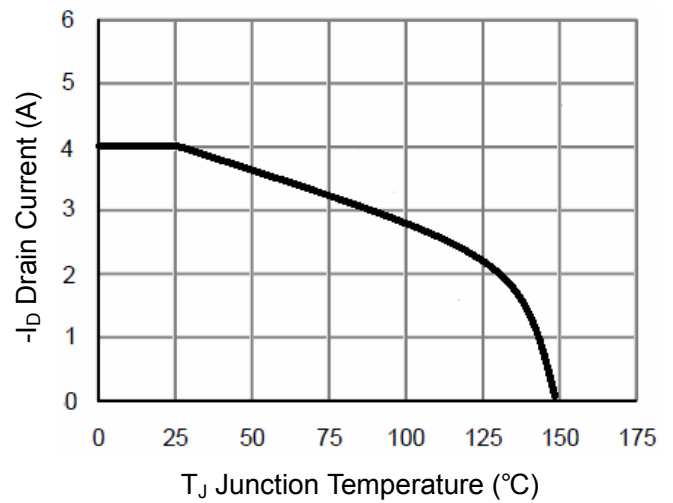
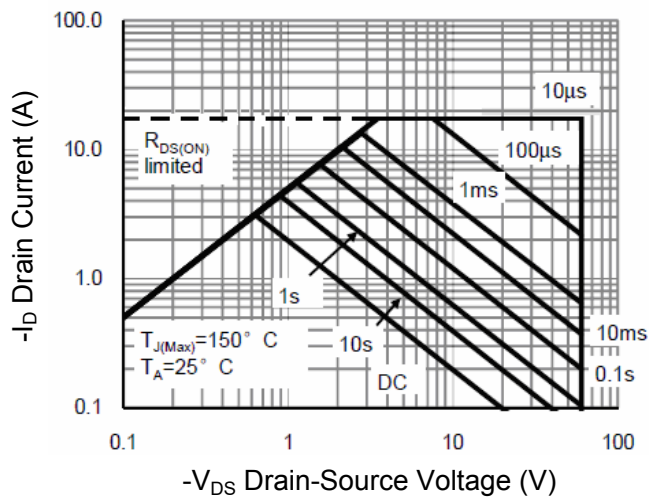
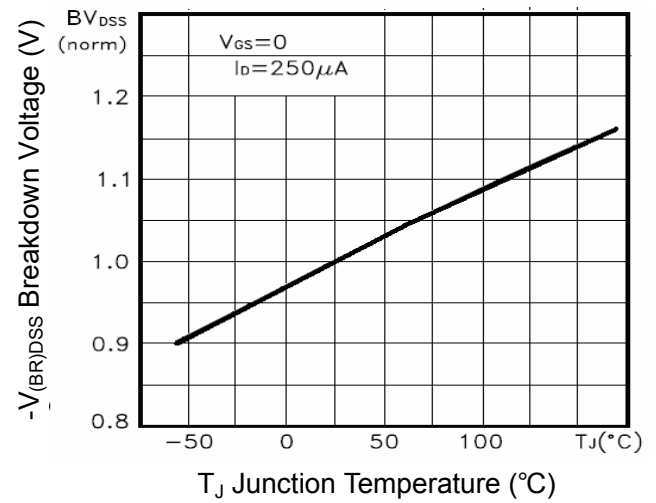
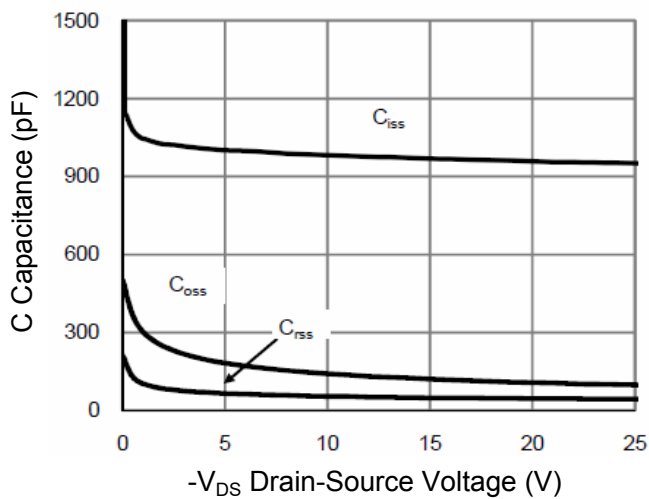
Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. Surface Mounted on FR4 Board, $t \leq 10$ sec.

3. Pulse Test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

Typical Characteristic Curves

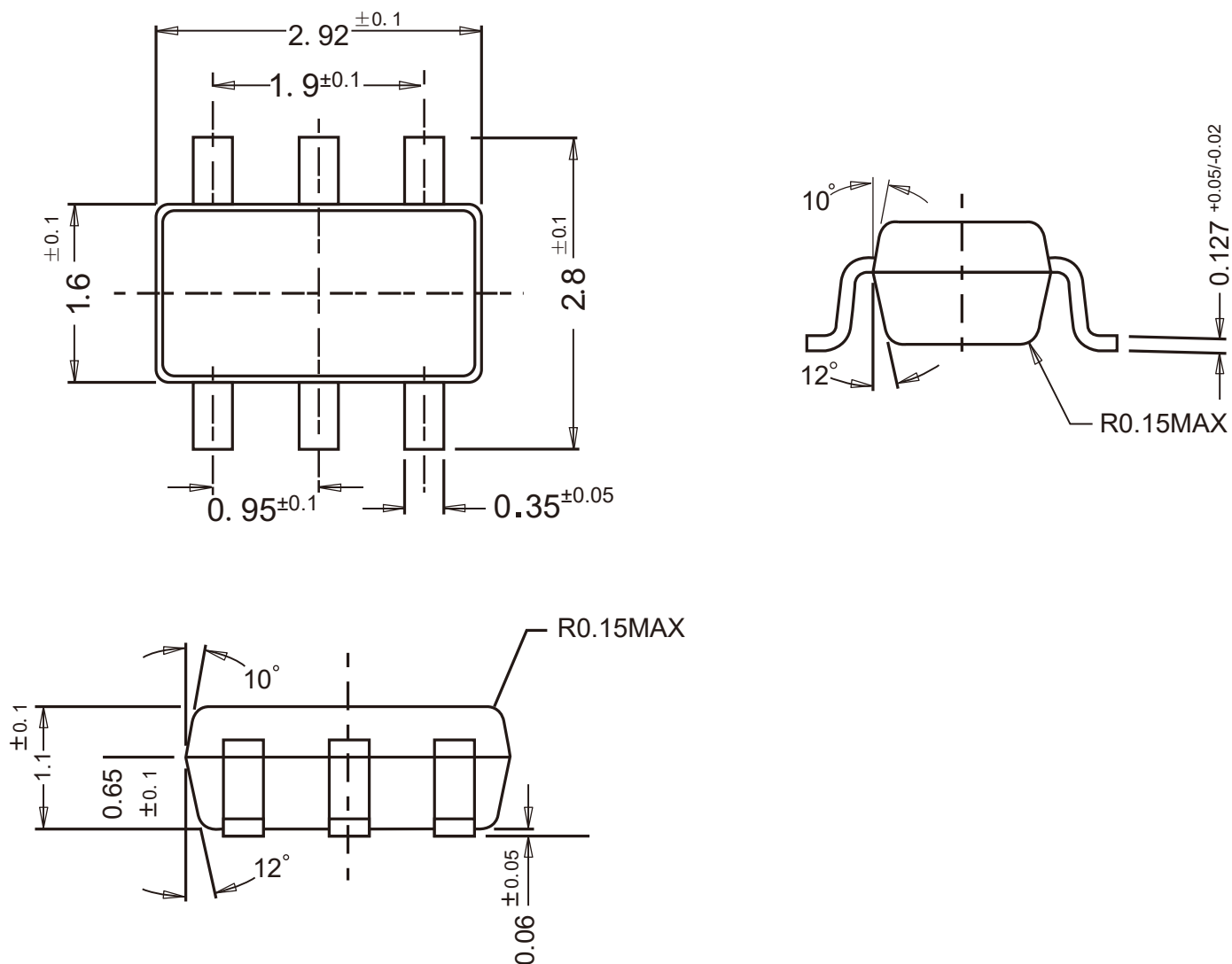




Package Outline

SOT-23-6

Dimensions in mm



Ordering Information

Device	Package	Shipping
EP04P60	SOT-23-6	3,000PCS/Reel&7inches