

MSD30P06

P-Channel 60-V (D-S) MOSFET

Description

The MSD30P06 is a N-channel enhancement-mode MOSFET , providing the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost effectiveness. The TO-252 package is universally preferred for all commercial-industrial applications

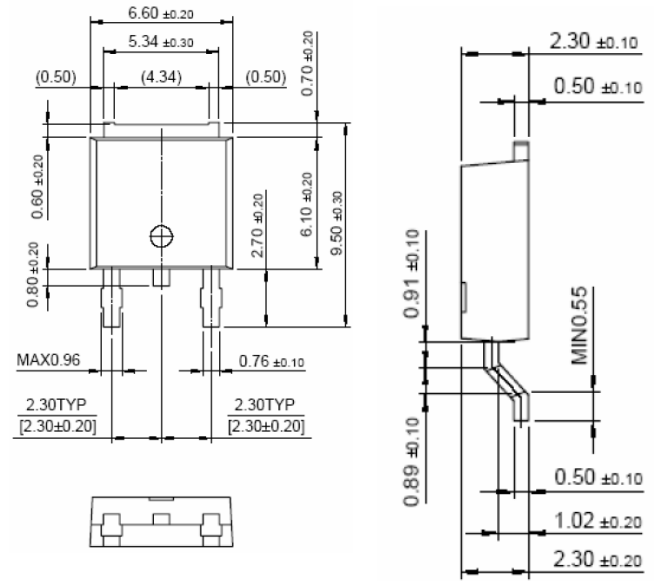
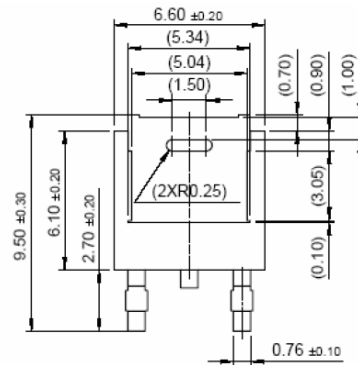
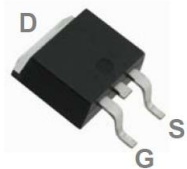
Features

- Low $R_{DS(on)}$ provides higher efficiency and extends battery life
- Low thermal impedance copper lead frame DPAK saves board space
- Fast switching speed
- High performance trench technology
- RoHS compliant package

Packing & Order Information

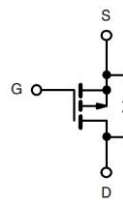
Part No./ T : 2,500/Reel

Part No./ R : 80/Tube , 4,000/Box



**RoHS
COMPLIANT**

Graphic symbol



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings (Tc=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	-60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current @ TC=25°C	28	A
I_{DM}	Pulsed Drain Current	±50	A
I_S	Continuous Source Current (Diode Conduction)	-30	A

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Absolute Maximum Ratings (Tc=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
P_W	Power Dissipation (TC=25°C)	50	W
T_J/T_{STG}	Operating Junction and Storage Temperature	-55 to +175	°C

Note:

1. Repetitive rating; pulse width limited by maximum junction temperature.

Thermal Characteristics (Tc=25°C unless otherwise noted)

Symbol	Parameter	Maximum	Units
$R_{\theta JC}$	Maximum Junction-to-Case	3.0	°C/W
$R_{\theta JA}$	Maximum Junction-to-Ambient	50	

Static Characteristics

Symbol	Test Conditions	Min	Typ.	Max.	Units
V_{GS}	$V_{DS} = V_{GS}$, $I_D = 250\mu A$	-1.0	--	--	V
$R_{DS(ON)}$	$V_{GS} = -10 V$, $I_D = 28 A$ $V_{GS} = -4.5 V$, $I_D = -24 A$	--	--	54 69	mΩ
I_{DSS}	$V_{DS} = -48 V$, $V_{GS} = 0 V$ $V_{DS} = -48 V$, $V_{GS} = 0 V$, $T_J = 55^\circ C$	--	--	-1 -10	uA
$I_{D(ON)}$	$V_{DS} = -5 V$, $V_{GS} = -10 V$	-20	--	--	A
I_{GSS}	$V_{DS} = 0 V$, $V_{GS} = \pm 20 V$	--	--	±100	nA
Gfs	$V_{DS} = -15 V$, $I_D = -28 A$	--	8	--	S
VSD	$I_S = 2.5 A$, $V_{GS} = 0 V$	--	--	-1.2	V

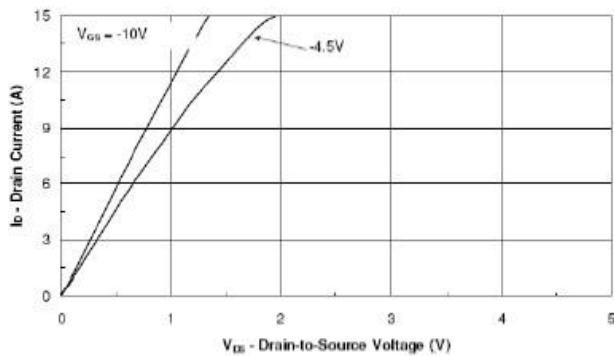
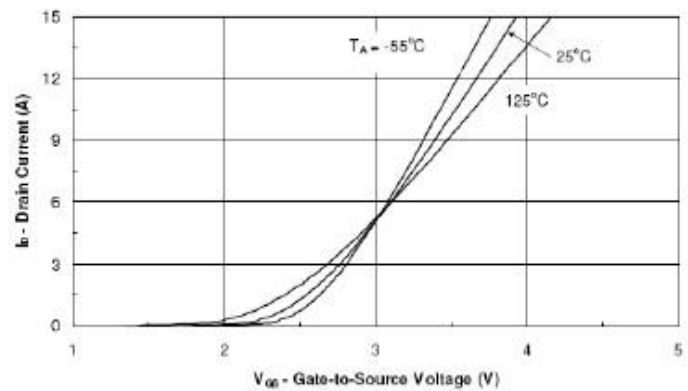
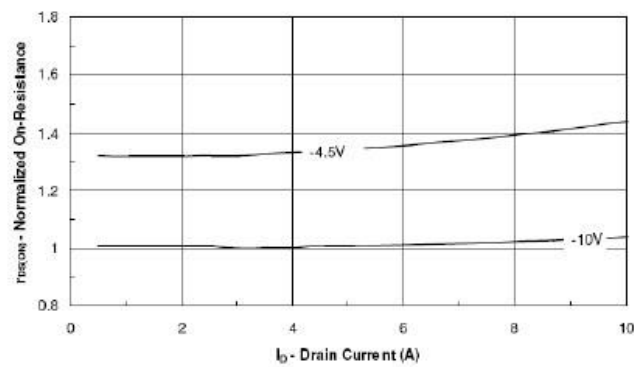
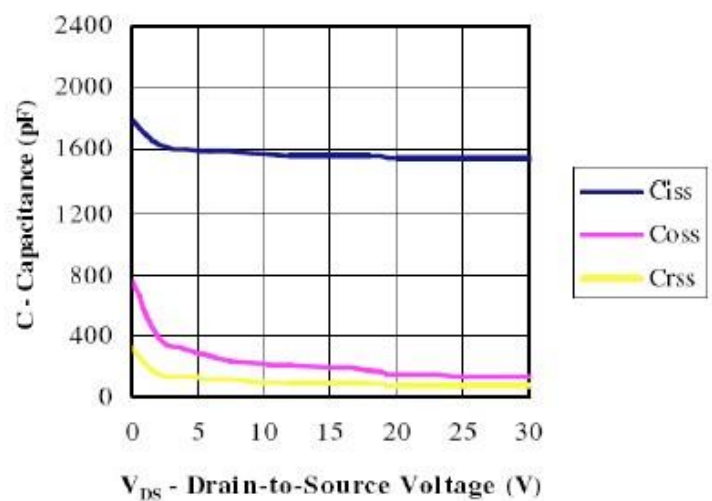
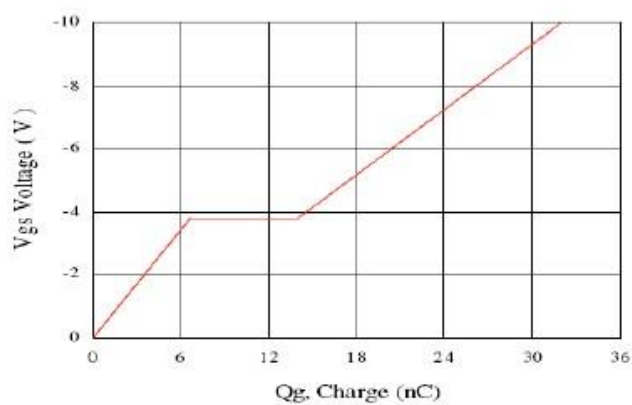
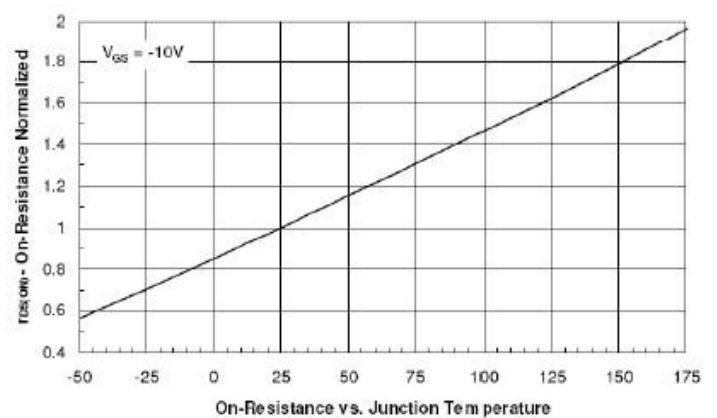
Dynamic Characteristics

Symbol	Test Conditions	Min	Typ.	Max.	Units
$t_{d(on)}$	$V_{DD} = -30 V$, $I_D = -1.0 A$, $R_L = 30\Omega$, $V_{GEN} = -10 V$	--	8	--	ns
t_r		--	10	--	ns
$t_{d(off)}$		--	35	--	ns
t_f		--	12	--	ns
Q_g	$V_{DS} = -30 V$, $I_D = -2.8 A$, $V_{GS} = -4.5 V$	--	18	--	nC
Q_{gs}		--	5	--	nC
Q_{gd}		--	2	--	

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■ Characteristics Curve



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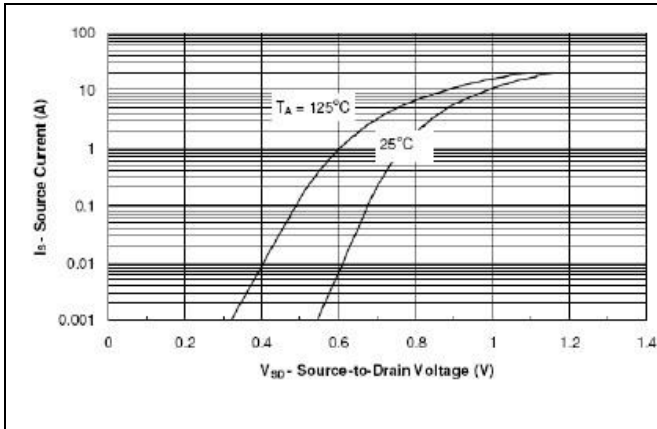


FIG.7-SOURCE-DRAIN DIODE FORWARD VOLTAGE

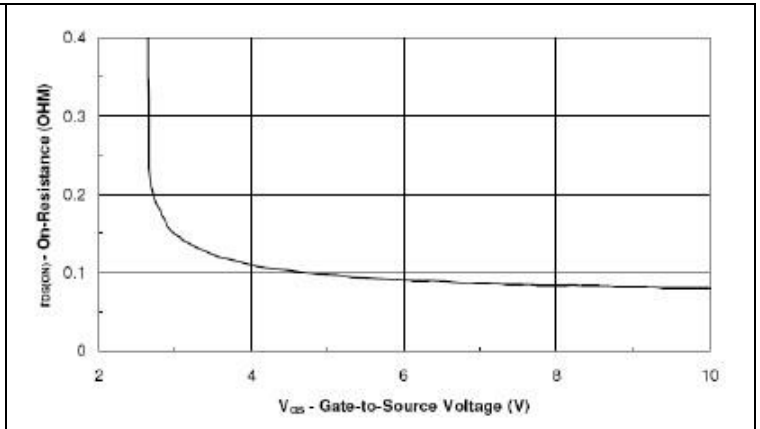


FIG.8-ON-RESISTANCE VS GATE-TO SOURCE VOLTAGE

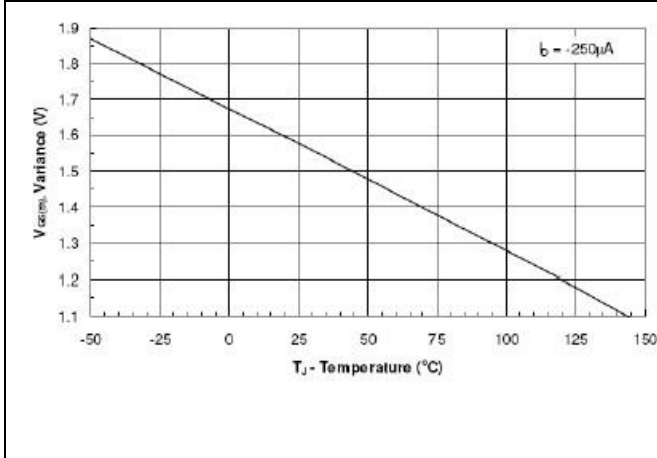
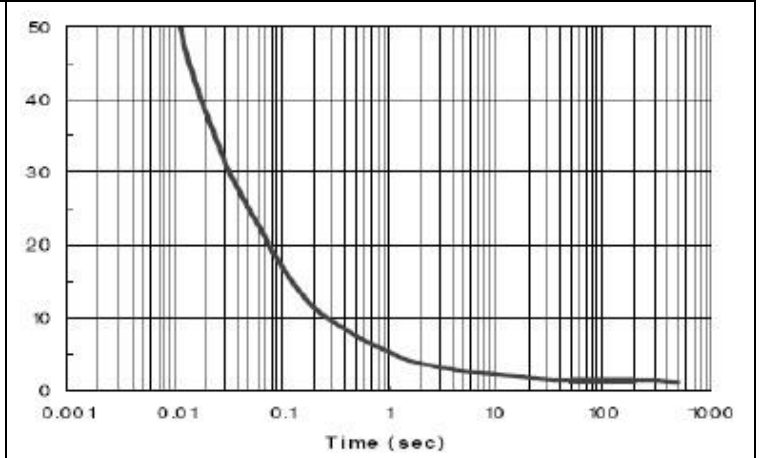
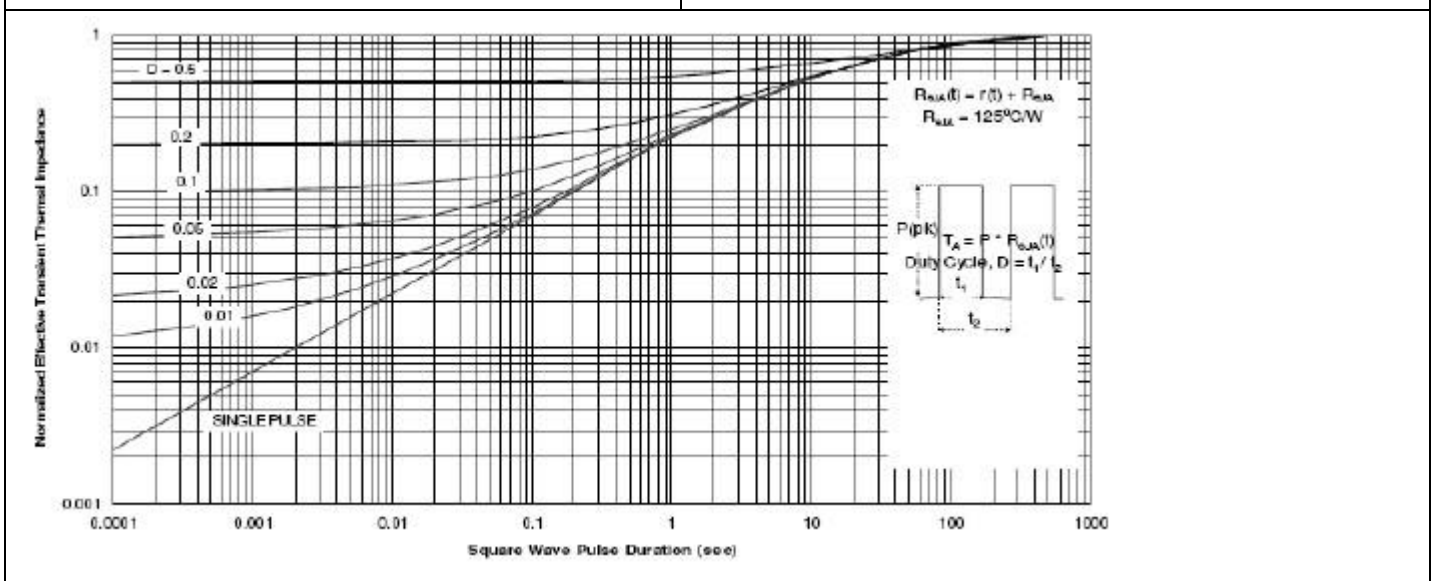


FIG.11-TRANSIENT THERMAL RESPONSE CURVE

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