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

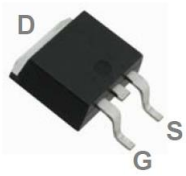
Features

- Low RDS(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

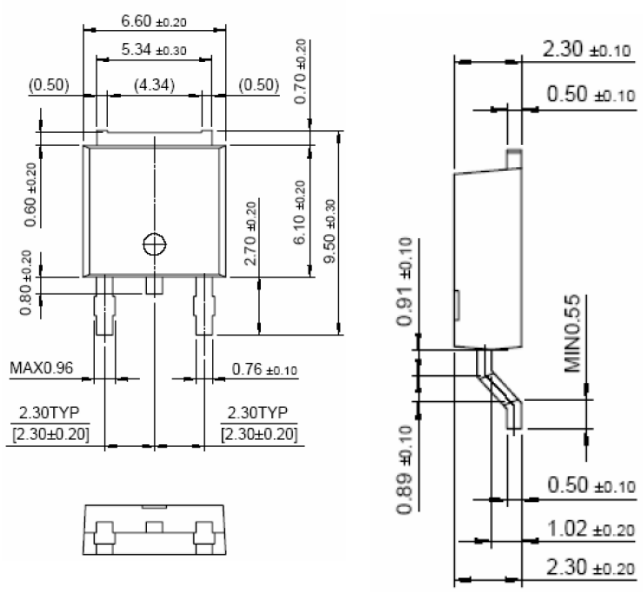
Packing & Order Information

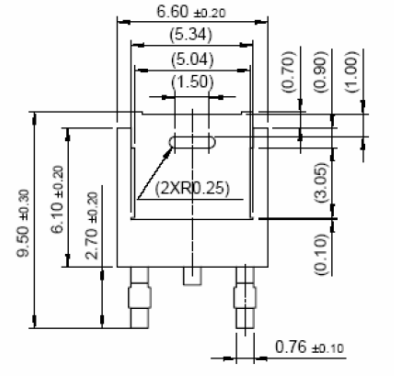
Part No./ T：2,500/Reel

Part No./ R：80/Tube , 4,000/Box

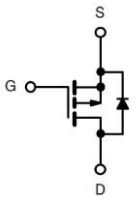


RoHS COMPLIANT





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 = 250μA	-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°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} = ±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 = 30ohm , V_{GEN} = -10 V	--	8	--	ns
t_r		--	10	--	ns
$t_{d(off)}$		--	35	--	ns
tf		--	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

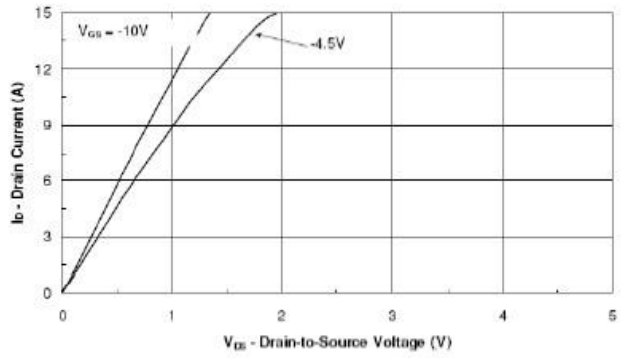

FIG.1-OUTPUT CHARACTERISTICS

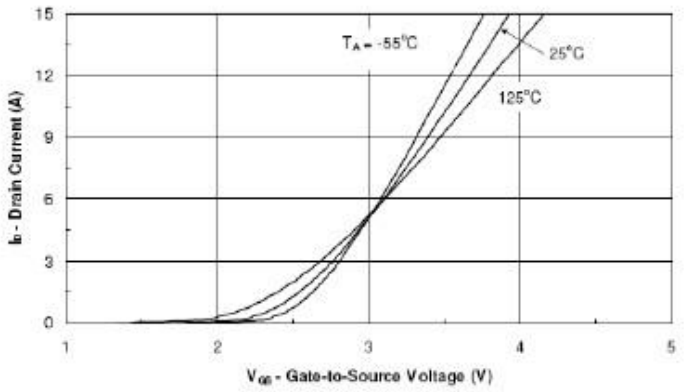

FIG.2-TRANSFER CHARACTERISTICS

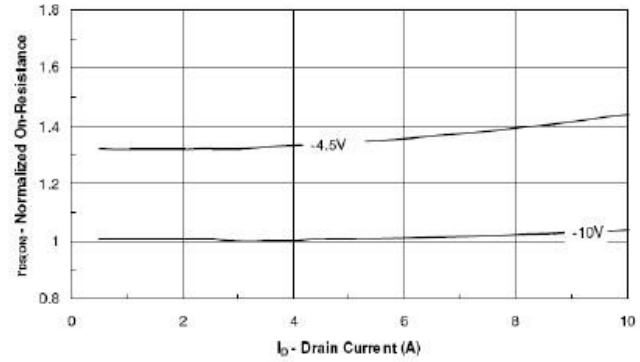

FIG.3-ON RESISTANCE VS DRAIN CURRENT

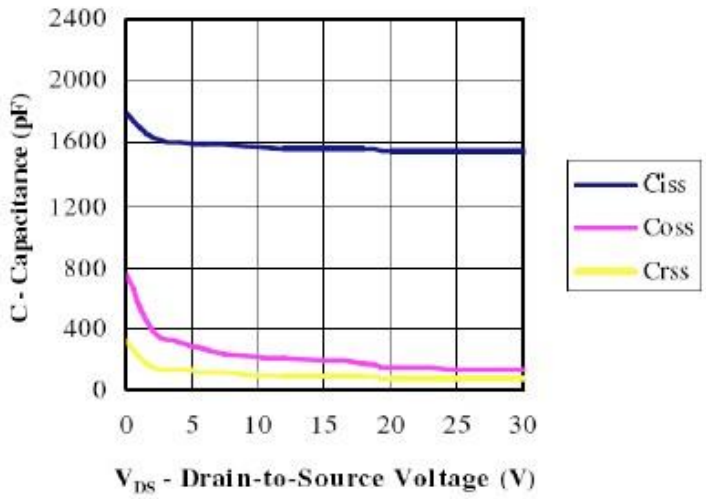

FIG.4-CAPACITANCE

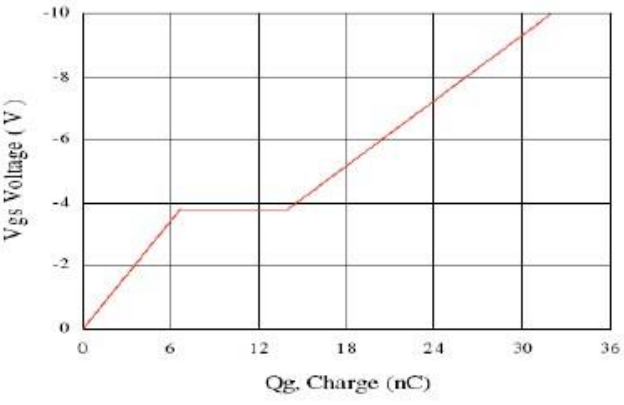

FIG.5-GATE CHARGE

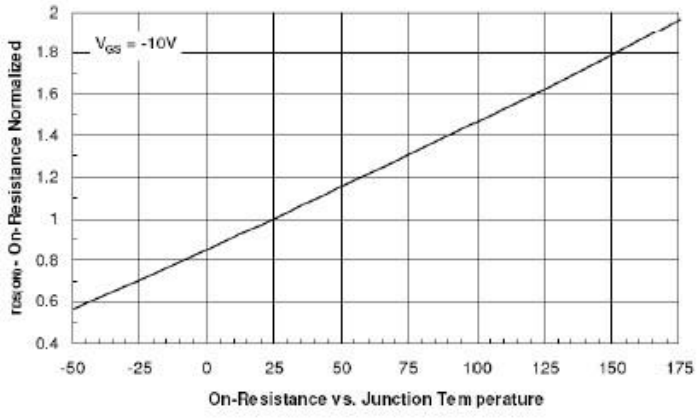

FIG.6-ON-RESISTANCE VS. JUNCTION TEMPERATURE

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■Characteristics Curve

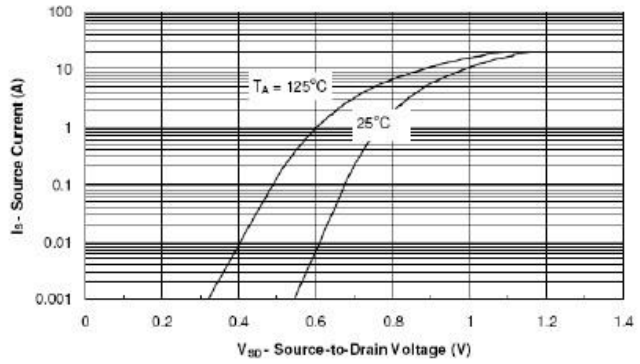


FIG.7-SOURCE-DRAIN DIODE FORWARD VOLTAGE

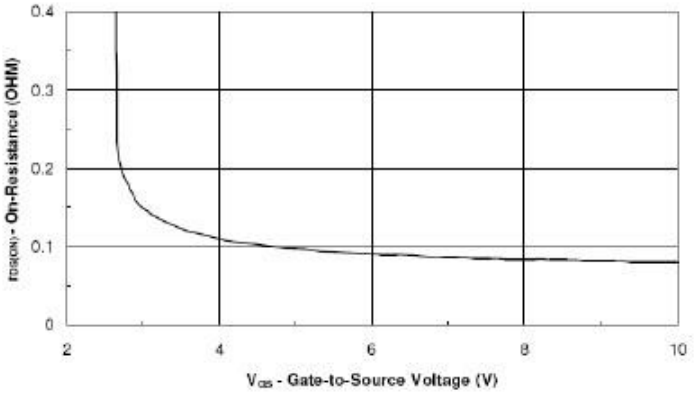
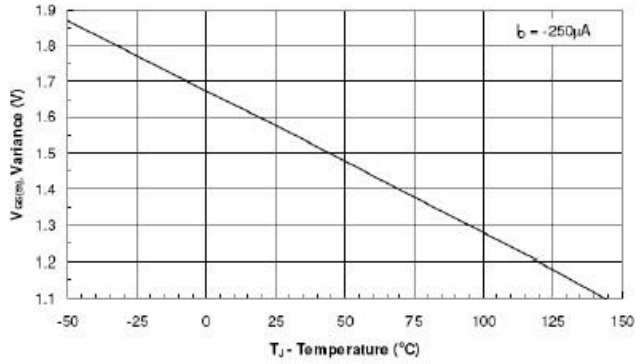
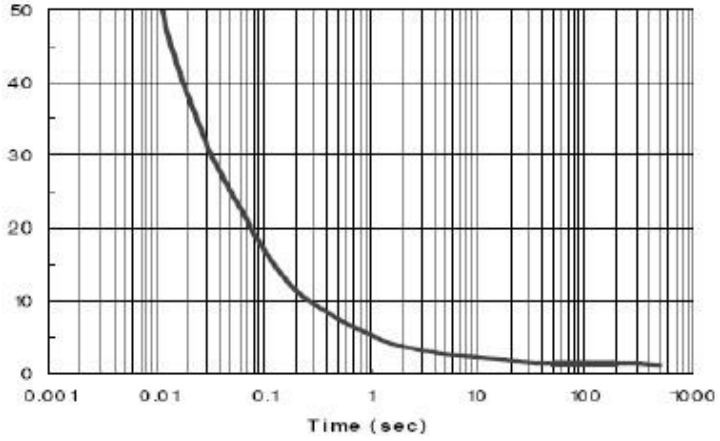


FIG.8-ON-RESISTANCE VS GATE-TO SOURCE VOLTAGE





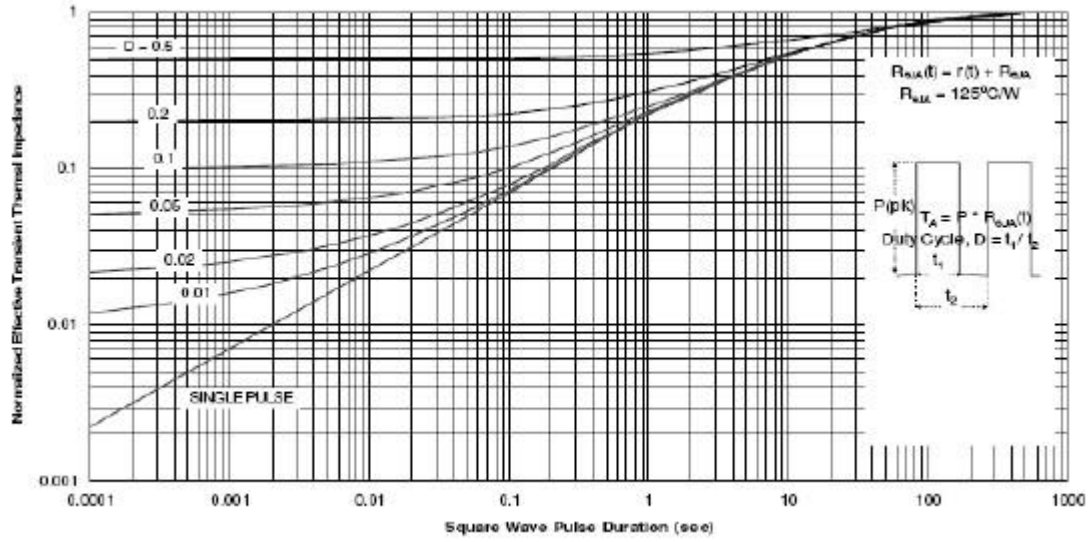


FIG.11-TRANSIENT THERMAL RESPONSE CURVE

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