

$V_{DS}=30V$

$R_{DS(ON)}, V_{GS}@10V, I_{DS}@45A=6m\Omega$

$R_{DS(ON)}, V_{GS}@4.5V, I_{DS}@30A=10m\Omega$

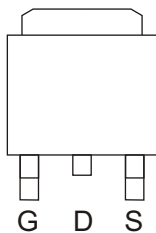
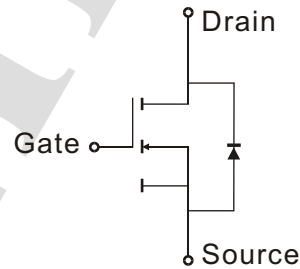
**FEATURES**

Advanced trench process technology

High Density Cell Design For Ultra Low On-Resistance

Specially Designed for DC/DC Converters and Motor Drivers

Fully Characterized Avalanche Voltage and Current

**TO-252(D-PAK)****Top View****INTERNAL SCHEMATIC DIAGRAM****Absolute Maximum Ratings ( $T_A=25^\circ C$  Unless Otherwise Noted)**

Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	$V_{DS}$	30	V	
Gate-Source Voltage	$V_{GS}$	$\pm 20$		
Continuous Drain Current	$I_D$	60	A	
Pulsed Drain Current <sup>1)</sup>	$I_{DM}$	350		
Maximum Power Dissipation	$P_D$	$T_A=25^\circ C$	70	W
		$T_A=100^\circ C$	42	
Operating Junction Temperature	$T_J$	-55 to 150	$^\circ C$	
Storage Temperature Range	$T_{stg}$			
Avalanche Energy with Single Pulse $I_D = 50A, V_{DD} = 25V, L = 0.5mH$	$E_{AS}$	300	mJ	
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	1.8	$^\circ C/W$	
Junction-to-Ambient Thermal Resistance (PCB mounted) <sup>2)</sup>	$R_{\theta JA}$	40		

Note: 1. Maximum DC current limited by the package  
2. 1-in<sup>2</sup> 2oz Cu PCB board

## 30V N-Channel Enhancement Mode MOSFET

### Electrical Characteristics (T<sub>J</sub> = 25°C Unless Specified)

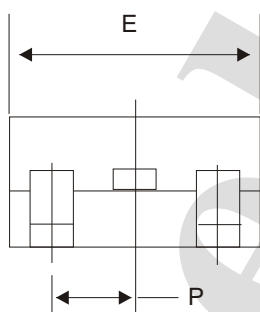
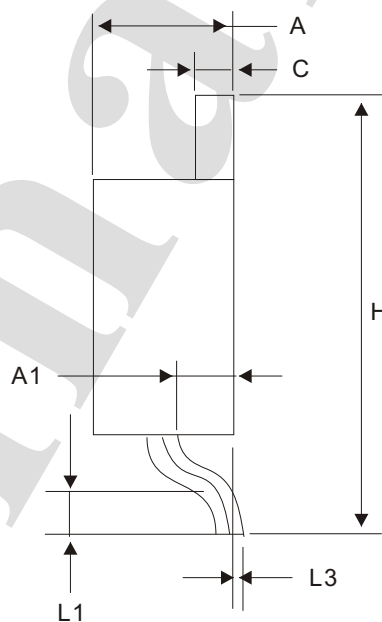
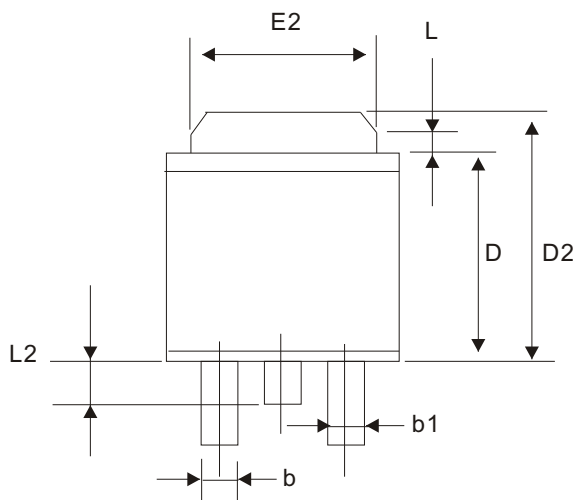
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
<b>STATIC</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250 μA	25	-	-	V
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 30A		7.5	9.0	mΩ
		V <sub>GS</sub> = 10V, I <sub>D</sub> = 30A		4.5	6.0	
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA	1	1.6	3	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> = 25V, V <sub>GS</sub> = 0V			1	μA
I <sub>GSS</sub>	Gate-Body Leakage	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V			±100	nA
R <sub>g</sub>	Gate Resistance			1		Ω
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> = 15V, I <sub>D</sub> = 15A				S
<b>DYNAMIC</b>						
Q <sub>g</sub>	Total Gate Charge			26		nC
Q <sub>gs</sub>	Gate-Source Charge	V <sub>DS</sub> = 15V, I <sub>D</sub> = 25A, V <sub>GS</sub> = 10V		6		
Q <sub>gd</sub>	Gate-Drain Charge			5		
T <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DD</sub> = 15V, R <sub>L</sub> = 15Ω I <sub>D</sub> = 1A, V <sub>GEN</sub> = 10V R <sub>G</sub> = 6Ω		17		ns
t <sub>r</sub>	Turn-On Rise Time			3.5		
T <sub>d(off)</sub>	Turn-Off Delay Time			40		
t <sub>f</sub>	Turn-Off Fall Time			6		
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V f = 1.0 Mhz		2134		pF
C <sub>oss</sub>	Output Capacitance			343		
C <sub>rss</sub>	Reverse Transfer Capacitance			134		
<b>SOURCE-DRAIN DIODE</b>						
I <sub>s</sub>	Max. Diode Forward Current				20	A
V <sub>sD</sub>	Diode Forward Voltage	I <sub>s</sub> = 20A, V <sub>GS</sub> = 0V		0.85	1.2	V

Note: pulse test: pulse width ≤ 300us, duty cycle ≤ 2%

## 30V N-Channel Enhancement Mode MOSFET

Physical Dimensions inches(millimeters) unless otherwise noted

### TO-252



SYMBOL	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.250	2.350	0.089	0.093
A1	0.950	1.050	0.037	0.041
C	0.490	0.530	0.019	0.021
E	6.400	6.600	0.252	0.260
E2	5.300	5.450	0.209	0.215
D	6.000	6.200	0.236	0.244
D2	7.100	7.300	0.280	0.287
H	9.700	10.100	0.382	0.398
L	0.600	Ref	0.024	Ref
L1	1.425	1.625	0.056	0.064
L2	0.650	0.850	0.026	0.033
L3	0.020	0.120	0.001	0.005
b	0.770	0.850	0.030	0.033
b1	0.840	0.940	0.033	0.037
P	2.290	BSC	0.090	BSC