Matsuki Electric

ME70N03

30V N-Channel Enhancement Mode MOSFET

Pb Free Product

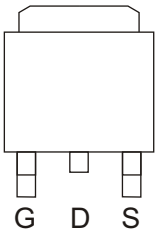
V_{DS}=30V
$R_{DS(ON)}$,Vgs@10V,Ids@45A=6mΩ
$R_{DS(ON)}$,Vgs@4.5V,Ids@30A=10mΩ

FEATURES

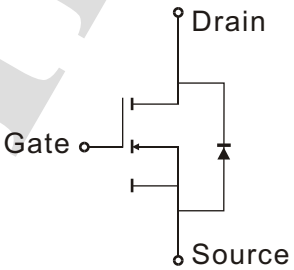
Advanced trench process technology
High Density Cell Design For Ultra Low On-Resistance
Specially Designed for DC/DC Converters and Motor Drivers
Fully Characterized Avalanche Voltage and Current

TO-252(D-PAK)

Top View



INTERNAL SCHEMATIC DIAGRAM



Absolute Maximum Ratings (T_A=25℃ Unless Otherwise Noted)				
Parameter		**Symbol**	**Limit**	**Unit**
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current		I_D	60	A
Pulsed Drain Current [1]		I_{DM}	350	
Maximum Power Dissipation	T_A=25℃	P_D	70	W
	T_A=100℃		42	
Operating Junction Temperature		T_J	-55 to 150	℃
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	℃/W
Junction-to-Ambient Thermal Resistance (PCB mounted) [2]		$R_{\theta JA}$	40	

Note: 1.Maximum DC current limited by the package
2.1-in^2 2oz Cu PCB board

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Electrical Characteristics (T_J =25℃ Unless Specified)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
STATIC						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D=250μA	25	-	-	V
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS} = 4.5V, I_D=30A		7.5	9.0	mΩ
		V_{GS} = 10V, I_D=30A		4.5	6.0	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D=250μA	1	1.6	3	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 25V, V_{GS} = 0V			1	μA
I_{GSS}	Gate-Body Leakage	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
Rg	Gate Resistance			1		Ω
g_{fs}	Forward Transconductance	V_{DS} = 15V, I_D =15A				S
DYNAMIC						
Q_g	Total Gate Charge	V_{DS}= 15V, I_D= 25A, V_{GS}=10V		26		nC
Q_{gs}	Gate-Source Charge			6		
Q_{gd}	Gate-Drain Charge			5		
$T_{d(on)}$	Turn-On Delay Time	V_{DD}= 15V, R_L = 15Ω I_D = 1A, V_{GEN}=10V R_G = 6Ω		17		ns
t_r	Turn-On Rise Time			3.5		
$T_{d(off)}$	Turn-Off Delay Time			40		
t_f	Turn-Off Fall Time			6		
C_{iss}	Input Capacitance	V_{DS}= 15V, V_{GS}=0V f = 1.0 Mhz		2134		pF
C_{oss}	Output Capacitance			343		
C_{rss}	Reverse Transfer Capacitance			134		
SOURCE-DRAIN DIODE						
I_S	Max.Diode Forward Current				20	A
V_{SD}	Diode Forward Voltage	I_S =20A, V_{GS} = 0V		0.85	1.2	V

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

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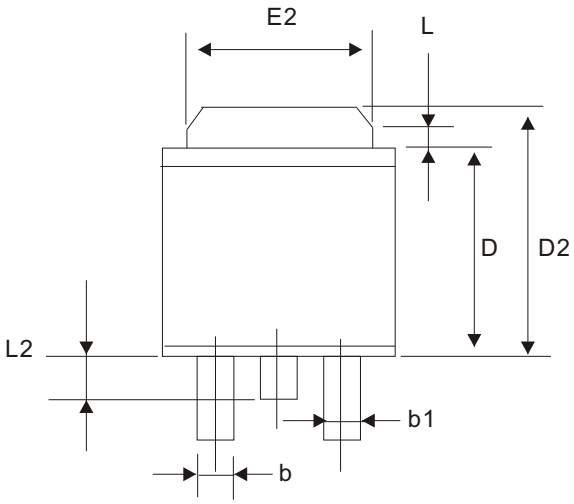
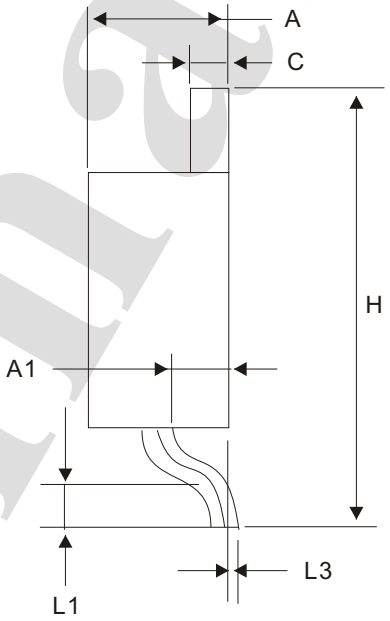
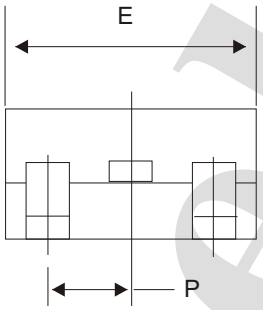
Physical Dimensions **inches**(millimeters) unless otherwise noted

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